Report on the problems of coal supply to thermal power stations

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1

Introduction to coal and power sectors

Coal sector

Coal is the primary source of commercial energy in India and meets about 56% of the energy requirements of the country. The coal industry's importance was recognized since the inception of the planning process in the country though, apart from the two government owned companies SCCL (Singareni Collieries Company Limited), NCDC (National Coal Development Corporation), the industry largely remained in the private sector until 1970. The industry was nationalized in two stages. coking-coal mines were taken over in October 1971 and all other coal mines in May 1973. However, coal mines that were captive to steel plants TISCO (Tata Iron and Steel Company), and IISCO (Indian Iron and Steel Company) were retained in the private sector. The nationalization was done, apart from other considerations, with a view to ensure that the production of coal, which is the primary source of energy, should be properly planned to meet the increasing energy requirements in the industrial development of the country. In 1975, the industry was reorganized with CIL (Coal India Limited) as the holding company. At present CIL has seven coal-producing subsidiaries, based mostly on geographical location, and one planning and design institute.

Coal reserves

The total coal reserves of the country up to a depth of 1200 meter are estimated at 211 billion tonne of which 39% is in the proven category, 42% in the indicated category and 19% in the inferred category. The non-coking coal reserves are estimated at 181 billion tonne, which is 85% of the total reserves. The details are given in Table 1.1.

Table 1.1 Category-wise coal reserves (million tonne) as on 01 01.2000

Type of coal	Proved	Indicated	Inferred	Total
Gondwana coals	81,984 08	89,423.51	39,299 01	210,706 59
Tertiary coals	411 86	77 31	397 84	887 02
Total	82 395 94	89,500.82	39,696 85	211,593.61
Prime coking	4,614 35	698 71	-	5,313.06
Medium coking	11,267 17	11,132 62	1,106 38	23,506 17
Semi coking	482.16	904 04	221.68	1,607 88
Subtotal coking	16,363 68	12,735 37	1,328 06	30,427 11
Non-coking	66,032 26	76,765 45	38,368 79	181,166 50
Total	82,395 94	89,500 82	39,696 85	2,11,593 61

Source Coal Directory of India 1999-00, Coal Controllers Organization

Coal production

Coal production increased from about 35 million tonne in 1951 to 295 million tonne in 1997/98, registering an annual average growth rate of 4.75%. After the nationalization of coal mines, large increases in production could be achieved through enhanced investment, increased share from opencast mining, increased emoluments and welfare amenities for coal workers, etc. The production from opencast mines, which contributed only about 20% in 1970/71, had increased to 76% in 1997/98. (Table 1.2)

Table 1.2 Coal production (million tonnes): 1970/71 to 1997/98

Year	Underground	Opencast	Total	Coking	Non-coking
1970/71	58 2	14 7 (20%)	72 9	17 8	55 1 (75%)
1980/81	73 3	40.7 (35%)	114 0	26 8	87.2 (76%)
1990/91	69 4	144 5 (67%)	213 9	44 9	169 0 (79%)
1997/98	70 9	224 9 (76%)	295.8	45 1	250 7 (85%)

Source Annual reports, Ministry of Coal

Production of coking coal, which was about 25% in 1970/71, has declined to 15% in 1997/98 and this trend is likely to continue in the future. The share of inferior-grade non-coking coal in the production mix has increased significantly whereas that of superior grade non-coking coal, which was 80% in 1980, declined to 40% by 1997/98

Coalfields like Jharia, West Bokaro, East Bokaro, and Ramgarh mostly produce coking coals, which are supplied to steel plants after beneficiation. However, the coking coals that are not suitable for iron and steel industry are used in power plants and other industries Raniganj, South Karanpura, Pench-

Kanhan, Korea-Rewa, Central India, and the North East Coalfields produce superior quality non-coking coal, which is dispatched to such industrial sectors as cement, chemicals, glass and ceramics etc. The bulk of the inferior grade non-coking coal production comes from Rajmahal, North Karanpura, Jharia, Korba, Ib valley, and Godavari coalfields. The intermediate grades are produced in Patherkeda, Singrauli and Wardha coalfields. Out of these, Wardha, Rajmahal, Singrauli, and Godavari coalfields mostly supply to pithead power stations. The coal demands of distant powerhouses are largely met from North Karanpura, Jharia, Ib valley, Talcher, and Korba. The production from many of these coalfields will start declining in the future. The coalfields that will continue to serve as potential sources for power sector are Singrauli, Korba, Talcher, Ib valley, North Karanpura, and Rajmahal.

Consumption of coal

Power sector is the largest consumer of coal with a share of nearly 70% in the total consumption This is followed by the industrial sector; the major consumers are steel, cement, and brick-manufacturing units (Table 1.3).

Table 1.3 Sectoral consumption (million tonne) of coal

Sector	1970/71	1980/81	1990/91	1997/98
Steel plants and coke ovens	14.0	21.0	30.9	32.8
Power plants	13.0	38.2	113.7	213.9
Cement	4.0	4.8	10.4	13.7
Railways	16.0	11.8	5.2	0.1
Other industries (includes captive power generation and brick manufacturing)	24.0	29.8	49.0	47.0
Colliery consumption	2.0	3.8	4.1	3.1
Total	73.0	109.4	213.3	310.6

Source Annual reports, Ministry of Coal

Imports

Due to the limited availability of indigenous coking coal and its deteriorating quality, low-ash coking coal is imported for blending with indigenous coal and used in integrated steel plants. Imports of coking coal have been rising continuously over the last 15 years and are about 10 million tonnes a year at present. The imports of non-coking coal have been marginal but, due to poor quality of indigenous coal supplies and with lowering of import duty, cement manufacturers, some other industries, and power plants along the southern and western coasts now import about 15 million tonnes of coal annually. For consumers located close to the mines and away from the ports, importing coal may not be economically viable proposition. Moreover, with increased customs duty and hardening of coal price in the international market coupled with the energy security concerns, imports are becoming less lucrative even for the consumers who were otherwise importing coal.

Coal movement

Rail is the main mode of transporting coal. With increase in dispatches of coal in full trains of Box 'N' wagons, this commodity is being increasingly moved as express goods fleet. Being the first priority on the IR (Indian Railways), coal trains are supposed to travel by the shortest or fastest routes, other freight traffic being diverted along secondary routes. The other major mode of coal movement is by the MGR (Merry-Go-Round) a system of unit trains owned and operated by power utilities, which is the preferred mode by the pithead power stations: the system comprises unit trains owned and operated by power stations mainly NTPC (National Thermal Power Corporation).

The share of rail transport in total coal movement was 78% in 1977/78 and declined to 58% in 1997/98. This is mainly due to a substantial increase in the coal movement by the MGR to pithead power stations (Table 1.4).

Table 1.4 Intermodal split of total coal movement (million tonne)

	1977/78		1997/98	
Mode	Quantity	%	Quantity	%
Rail	78	78	176	58
Road	17	17	53	17
Belt	2	2	7	2
Ropeway	1	1	6	2
MGR[a]	2	2	63	21
Total	100	100	305	100

Source Annual reports, Ministry of Coal

Coastal movement has been increasing consistently over the years with increasing demand from coastal power stations, thus emerging as an important mode of coal movement to southern India. Coal is moved in ships after it has been carried from mines to linked ports. The coal-handling ports are Haldia, Paradip, Vishakapatnam, Chennai, and Tuticorin and about 10 million tonnes of coal is moved annually.

Since power sector is the largest consumer of coal, the movement of coal will be largely influenced by the location of future power plants. The pithead power plants will draw coal through such captive modes as MGR or company-owned wagons, but the distant power plants will have to depend on rail and rail-cum-sea modes.

Power sector

The electric power industry in India has registered significant progress since the inception of the economic planning process in 1951. Installed capacity has grown from about 1,360 MW in 1947 to about 97,435 MW in March 2000. The installed capacity of utilities by region and state as on 1.1.1999 is given in Annexure 1.1. Apart from the utilities under the Central Sector and State Electricity Boards, which constitute the bulk of the installed capacity, there are some private-sector companies operating utilities in some of the states.

There has been a significant change in fuel-mix over the years. Against an optimum of 60.40 thermal-hydro mix for a large power system, the share of hydro steadily declined from about 43% in 1970 to 24% in 1998/99, with a corresponding increase in the share of thermal power, which constitutes about 74% of the total installed capacity currently. Coal-based thermal power dominates in the thermal mix with a share of almost 85%; the share of oil has fallen marginally from 3% in 1970 to 2% in 1998/99 whereas that of gas has increased from about 2% to 13%. The share of nuclear power has stagnated at about 2% and that of wind is 1% of the total installed capacity.

Coal based thermal power plants

The total installed capacity under coal based thermal power plants is about 57000 MW and the total coal consumption in 1998-99 was 205 MT. The major issues affecting the coal based power plants are availability of coal, coal handling arrangements at the colliery loading points, coal transportation infrastructure (mostly IR), quality of coal, system of grading and pricing, sampling and analysis and method of payment of coal supplies. Most of the thermal power plants are normally linked to specific grades of coal, but the actual coal received shows grade slippage. The quality and other related issues have remained unresolved even after two decades of negotiations.

Objectives of the study

As indicated earlier, there are many unresolved problems relating to coal supply to the thermal power plants both in the private and state sectors. The objective of the study is to prepare a report covering all the issues between the coal producer and the utility relating to coal supplies since nationalization of coal mines. The report attempts to document all the decisions taken at the highest levels in the government at different times. An attempt has also been made to document the status and impact of implementation/ non-implementation of these decisions.

Methodology

Reports of the CPU (Council of Power Utilities), CIL, CCO (Coal Controllers Organization) and Planning Commission and other agencies have been studied for collecting information. In addition, various reports /articles on coal supply, quality etc. have also been studied.

Discussions were also held with officials of some State Electricity Boards, Private utilities, CIL, Coal Controller, CPU, Third party agencies appointed for sampling, CEA (Central Electricity Authority), CFRI (Central Fuel Research Institute) and NTPC. A set of questionnaire was prepared for collection of data relating to coal quality and related subjects. The report has been prepared under the following chapters.

- Chapter 1: Introduction to coal and power sectors
- Chapter 2: Coal distribution and transportation
- Chapter 3: Coal quality and related issues
- Chapter 4: Coal sampling, preparation and analysis - standards and practice
- Chapter 5: Fuel supply agreements

2

Coal distribution and transportation

Coal linkage and distribution

Pre-nationalisation period

During the period of Second World War (1939-45), the coal availability throughout the country was critical and complete control of coal industry became inevitable. Control on production, distribution, and price of coal was imposed and the Colliery Control Order 1945 was issued under the Defence of India Rules 1939. This order provided for fixation of price of various grades of coal and also regulation of sale of coal by the Central Government. The Coal Commissioner was empowered to implement the Colliery Control Order. After the lapse of the Defence of India Rules, the CCO 45 (Colliery Control Order, 1945) was included under the 'Essential Commodities Act' 1955. In February 1956, the post of Coal Commissioner was bifurcated into those of i) Coal Production and Development Commissioner made responsible for public sector collieries and

ii) Coal Controller to look after the control aspect of the industry. The CCO 45 gave the Government/Coal Controller the right to intervene in the following matters:

- Coal grading and laying of sampling and analysis standards (Clause 3)
- Coal pricing (Clause 4 and 5)
- Coal production and dispatch (Clause 8, 10A and 11)
- Coal allotments to customers (Clause 12A and 12C)
- Transportation (Clause 12F)
- In addition, the CCO 45 granted other powers to the Government to be exercised by the Coal Controller.

Prior to the nationalisation of the coalmines, linkages for the supply of coal to consumers including thermal stations were not drawn up by any centralised agency on a planned or systematic basis. The Coal Controller carried out the exercise of drawing up the coal supply programme for meeting the needs of various coal consumers.

Post-nationalisation period

After the nationalisation of the industry, the need was felt to evolve a rational system for linking the different sources of coal supplies with the major consumers, taking into account, inter alia, the location of the consuming unit, availability of transport facilities etc. In order to provide an institutional framework, involving all the concerned agencies in the exercise, it was therefore, decided to set up the SLC (Standing Linkage Committee) under the Department of Coal to carry out this task. Coal linkage was given only to actual consumers of coal. In granting linkages for coking coal a higher priority was given to the consumers who use it for metallurgical purposes.

The broad features of the coal linkage/distribution system and policy framework is given below:

- Consumers of coal are categorised as (a) core sector comprising of Power (including captive power plant), steel (Including sponge iron and pig iron), cement, fertiliser, and (b) non core sector comprising of industries and brick manufacturing units.
- All consumers, except brick industry, are covered by the linkage system. Power, cement, fertiliser, steel is given long term linkage for coal requirement by SLC under MOC (Ministry of Coal)/ MOS (Ministry of Steel). Linkage in respect of non-core sector consumers except brick manufacturing units is given by Non-Core-Sector linkage committee operating at CIL level. For linkage of more than 25, 000 tonne of coal per month in respect of each unit of non-core sector consumers, a clearance from the MOC is required.
- Brick manufacturers categorised as BRK sector, being seasonal in nature, has been kept outside the purview of the linkage system and supply to this sector is made against State Government Sponsorship subject to availability earmarked for this sector.
- So far as supply of coal by rail is concerned, the consumers have always been covered under a system of sponsorship. Respective Sponsoring authorities, as stipulated in PTS (Preferential Traffic Schedule) of the railways, recommend number of wagons to be supplied in favour of consumers.
- The system of linkage has a provision for linkage getting snapped after non-drawal for a period of continuous 12 months and cancellation in case of non-drawal for a period of 36 months.

Standing linkage committee (long term)

Power and cement sector

Additional Secretary, MOC is the Chairman of the Standing Linkage Committee. Other members of the Committee are the Coal Controller, representatives from CIL, SCCL, and Ministry of Railways, MOP (Ministry of Power), CEA, Planning Commission and Ministry of Industry. The Committee decides linkage of coal for its source of supply, quantum and mode of transportation. The Committee meets as and when required for long-term linkages for new plants (power, cement). Constraints of rail movement, coal production programmes, production potential of different coalfields and coal requirements of power and other sectors are taken into account at the time of according coal linkages.

Standing linkage committee (short term)

Additional Secretary, MOC is the Chairman of the short term Standing Linkage Committee also. Other members of the Committee are the Coal Controller, representatives from CIL, SCCL, and Ministry of Railways, MOP, CEA, and Ministry of Industry. The Committee meets quarterly to review the linkages to existing power and cement plants and grants coalfields-wise linkages to the units in these sectors. The above broad linkages (coalfields-wise) are then converted into mine-wise linkages by RLCs (Regional Linkage Committees) constituted by MOC. These committees consist of representatives from concerned coal producing companies, CEA, Power Station Authorities and Zonal Railways. Based on the decisions taken in these meetings, the coal producing companies indent for supply of wagons for coal movement to thermal power stations.

Steel sector

Requirement of indigenous coking coal is being assessed annually based on the requirement of hot metal production fixed by the MOS. Accordingly, MOS advises CIL about their coal requirements and CIL in turn indicates to the Steel Authority the quantities it could supply during the year.

The Coal Controller is ultimately responsible for distribution of coking coal on month to month basis based on coal companies' offers. Railways, representatives of steel plants and those of coal companies producing coking coal, attend the meeting in which distribution of coking coal is decided.

Fertiliser sector

Fertiliser plants are required to obtain clearance for coal supplies from MOC. Their requirement is to the sponsored by Ministry of Chemicals and Fertilisers. There were two coal based fertiliser plants, which have now been closed down The coal now being allotted to this sector is, for captive power generation or for raising process steam.

Policy changes in distribution of coal[1]

- In March 1996, the Central Government deregulated prices of coking coals and superior grades (A, B, & C) of non-coking coals. These coals can be distributed by the coal companies themselves
- The Railways have also amended their PTS to enable the coal companies to sponsor the movement of these coals
- All restrictions on the mode of transport of coal were removed
- In January 2000, the Central Government issued the Colliery Control Order 2000, superseding the earlier Colliery Control Order, 1945. Through these orders, distribution as well as pricing of all grades of coal have been decontrolled with effect from January 1, 2000. As per the provision of new Colliery Control Order the condition of linkage and/or sponsorship for distribution of coal is no longer necessary. In order to ensure that the desired benefits of decontrol reach both the consumers of coal and producers/seller, it has become necessary that CIL formulate a new policy framework for sale of coal to all categories of consumers which is simple, transparent, consumer friendly with more well defined commercial obligations on the part of both consumer/buyer on one hand and producer/seller on the other.

Current status of linkage committee

After the price and distribution of coal was decontrolled in January 2000, the committee has lost its sanctity However, the Cement Industry requested the MOC for continuance of this committee[2]. The reasons forwarded for such a request was that it would become very difficult to deal with numerous coal mines for getting the consent for allotment of wagons for movement of coal. More than 70 million tonne of coal consumed per annum by pithead power plants of NTPC has gone out of the purview of this committee. NTPC has entered in to fuel supply agreements with coal companies, linkages being a part of these agreements. The consumption of indigenous coal in cement sector has been reduced because many of the cement plants have started importing coal. Thus, the total quantity of coal that this committee was linking on a quarterly basis has been significantly reduced. It is also expected that once all core sector consumers enter in to long-term fuel supply agreement with the coal companies, there will be no need for a formal SLC.

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[1] DO letter no 22011/1/91-CPD (vol I-III) dated 30th August 1996 Ministry of Coal

[2] Minutes of 191st SLC dated 24 12 1999 F No 23014/3/99-CPD

Coal transportation by Indian Railways

Coal transportation plays a major role in any linkage decision. The transport modes for moving coal to the consumers are Rail, Rail cum Sea, Road, MGR aerial ropeway, and belt conveyors. Though the share of rail in total transport has been declining over the years, it retains its role as the predominant mode of transport of coal carrying more that 59% of the total tonnage. MGR (unit train) mode of coal transport to pithead power utilities has grown rapidly in the last two decade and is likely to grow further. Another growth area is the multi-modal transport by rail-cum-sea route but the growth of this mode is essentially related to the development of new ports capacity and augmentation of the existing ones, both needing large investments.

The railways are operated as a monopoly Government organisation. Their operation is governed by the Railways Act 1989. While any detailed analysis of this Act is beyond the scope of this study, the Act appears to be strongly biased in favour of the railways while largely ignoring the needs of the consumers. The power sector is the largest consumer of coal in India. About 62% of the coal used by TPS is transported by rail which is 27% of the total freight traffic carried by the railways.

Major issues in rail transportation

The rail transportation sector, like the coal sector, faces many challenges such as lack of capital, imbalances in capacity and equipment utilisation, and non-payment from customers. Some freight rate liberalisation has enabled the railways to partially address these needs, but price liberalisation in the rail sector has been very limited to date. Under current policies, the railway tariff is predetermined and is the same for all commodities assigned to a given class. It is noted that the current freight tariffs reflect the requirement that the railways subsidise passenger and other freight traffic. The major issues involved in transportation of coal by rail to power stations are.

i) transport over long distances due to irrational coal linkage
ii) failure to meet linked quality

iii) linkage from multiple sources and
iv) Railway's procedural rules which include rail freight, railways risk diversion of rakes, demurrage charges etc.

Irrational coal linkage

The irrational coal linkage is mainly due to uneven distribution of coal reserves/ production capacity and location of coal based power stations in the country. For example, BCCL/CCL collieries supply coal to nine of the northern region power stations located at distances of 780 to 1505 km. Through a more rational linkage, the rail transportation distances could be reduced for some power stations (e g. from NCL to Ropar, Bhatinda in place of CCL). Similarly, for some power stations located in Maharashtra and Gujarat, even though coal supplies from WCL mines would be over the shortest distance, the stations are linked to MCL and SECL increasing rail transportation distance and also the delivered cost of coal and increased transportation problems.

The reason is that WCL cannot meet the full demand of these power stations For the southern stations, ideally, coal supplies should be met from SCCL but due to capacity constraints, many of the power stations are linked to MCL. The distances from selected power stations to the sources of supply are given in Annexure 2.1.

There are instances where surplus coal is available (i.e. Talcher) and utilities in West Bengal are ready to accept this coal but the coal is not moved. Kolaghat TPS in west Bengal receives almost 2 million tonnes from Talcher but utility CESC has not been given this linkage reportedly due to operational problem of IR. This creates more irrationality in the system. Unfortunately, these are beyond the control of the utility.

Failure to meet the linked quantity

It is reported that quite often the linked quantities from each coalfields /source are not adhered to, resulting in higher delivered cost of coal to the utilities (due to higher basic price of coal and /or increased rail freight) For example, currently stations of CESC are linked to Ranigunj (40-45%), Mugma/ Salanpur (25-35%) and Jharia (24-35%). Actual supplies have been more from Ranigunj coalfields. There has been regular shortfall from Mugma Salanpur and Jharia coalfields (Table 2.1). Increased supply from Ranigunj increases the delivered cost of coal both in terms of per tonne and per million calories. Similarly, some of the Gujarat TPS were mainly linked to Korea Rewa but small quantity was also linked to Talcher in the past. In practice, more supplies from Talcher and other coalfields resulted in increased delivered price and more importantly coal quality problem in the plants. This resulted in cancellation of linkages from all other coalfields. All Gujarat TPS now get coal only from Korea Rewa.

Table 2.1 Coal linkage to CESC utilities April - December 2000 (lakhs tonne)

	1st Quarter		2nd Quarter		3rd Quarter	
Linked coalfields	Linked quantity	Actual Supplies	Linked quantity	Actual Supplies	Linked quantity	Actual Supplies
Ranigunj	4.2	6.7 (159%)	5.4	7.7 (134%)	4.05	5.14 (127%)
Mugma/Salanpur	2.4	2.2 (92%)	3.0	2.45 (82%)	3.30	0.96 (28%)
Jhana	3.9	1.6 (46%)	3.0	1.34 (44%)	2.40	2.0 (83%)
Total	10.5	10.5	11.4	11.49	9.75	8.10

Source. CESC report

Multiple linkage

It is also observed that some power stations are being supplied coal from a large number of collieries For example, coal for Badarpur is loaded from25 points in two companies (13 from BCCL and 12 from CCL), MSEB and GEB plants get coal from 46 and 40 loading points respectively. This results in quality variations of coal supplies affecting the performance of the power plant. This issue was addressed in the 'Fazal Committee' report (1983) and the Committee had recommended that the number of mines supplying coal should preferably be restricted to three or four collieries but not to exceed ten in any case. The other problem with ECL linkages is that the collieries are under 'basket linkage'. These collieries supply coal to many consumers, mostly by road in addition to power stations. Generally, this practice of 'basket linkage' is prevalent in those companies where superior grade coal is sold to power stations as also to other consumers. This leads to grade slippage / inconsistent grades in supplies to power plants as road dispatches are selective and residual material is loaded in rail wagons.

High incidence of rail freight

The role of rail transportation is predominant in moving coal and the consumer is bearing the burden of high freight charges that are being increased year after year when internationally rail transportation rates are falling. Indian coal freight rates show substantial annual increases over the last six years in current terms and even in constant terms having risen over 20%. The average realization of freight from coal/tonne km is higher then the average cost of all other goods transported on tonne km basis. (Figure 2.1)

Apart from the regular annual increase in the freight rates through the Railway budget, the increase in freight is sometimes effected through the change in the commodity code of coal. This practice is generally adopted to circumvent the normal route of freight increase through annual budget and its placement for approval in the Parliament. Railway Fare and Freight Committee has also advised IR not to adopt this policy because it distorts the given structure of freight[3].

Telescopic effect in freight

Reduction in the telescopic effect in freight has caused comparatively higher cost of delivered coal to long distance users. It is noted that the freight rate structure in India on a per tonne-km basis decreases only marginally with distances over 600 km. The rail freight for coal transportation over different distance slabs for selected years is given in Table 2.2 and Figure 2 2.

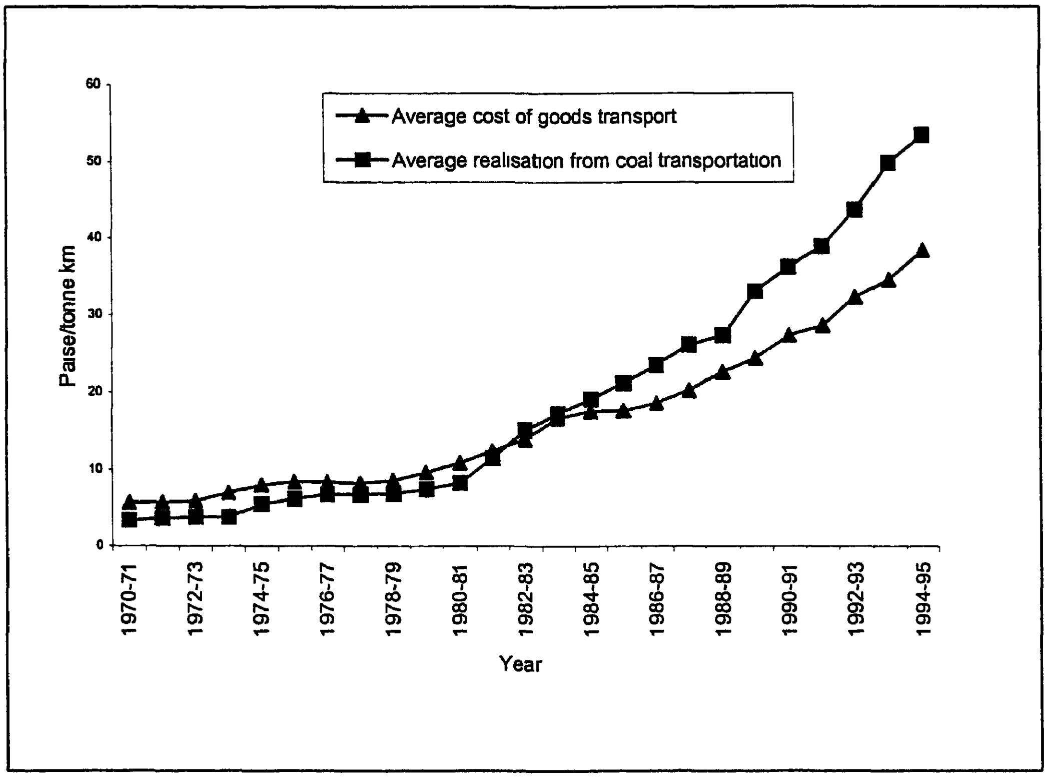

Figure 2.1 Average realization of coal transportation against average cost of goods transport

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[3] Railway Fare &Freight Committee Report, Annexure 2 2, para 8 17 2, pp 73

Table 2.2 Rail freight for coal transport (rupees/tonne kilometer)

	Freight with effect from									
	01 04 84		01.04 90		01 04 95		01 04 97		01.04.2000	
Km	Rs/TKM	%	Rs/TKM	%	Rs/TKM	%	Rs/TKM	%	Rs/TKM	%
100	0 33		0 50		0 74		0 92		1.02	
300	0 20	59%	0 38	75%	0 57	76%	0 63	69%	0 78	77%
500	0 21	61%	0 36	71%	0 56	75%	0 69	75%	0 77	75%
700	0 19	57%	0 36	71%	0 55	74%	0 68	74%	0.75	73%
1000	0 18	54%	0 34	68%	0 55	74%	0 68	74%	0 75	73%
1200	0 17	51%	0 33	66%	0 54	73%	0 67	73%	0 74	72%
1500	0 16	49%	0 33	65%	0 53	71%	0,65	71%	0.72	70%
2000	0 15	44%	0 30	59%	0 49	66%	0 60	66%	0 66	65%

% Over 1st slab, TKM = Tonne kilometre

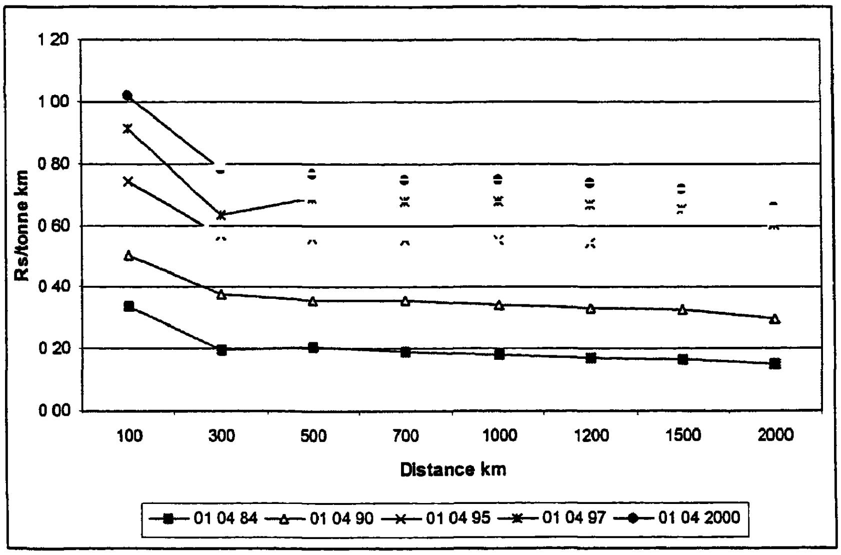

Figure 2.2 Rail freight for coal transport (Rupees per tonne km)

The following observations can be made from the Figure 2.2 and the Table 2.1.

- The freight charge for shorter distance up to 300 km is the highest. This is anomalous because the turn around for the wagons and engines are much smaller compared to long distance, specially when the free loading and unloading time has been drastically reduced. The wagons and engines run almost like captive system and can give higher returns for the IR. There is a sharper fall in this range noticed during the year 1997 indicating that IR has passed on a part of this benefit to consumers situated at this distance slab.

- There was a fall in freight between 300 to 500 km for initial years under reference but in 1997, this has been reversed and the freight has increased
- The average lead of coal has been hovering around 700 km and the freight has been all along kept flat for the distance slab of 500 to 1000 km except for a fall in the initial years. In fact, this is flat even up to 1500 km for the year 1997 and then there is a decline. This decline was much marked and started from 700 km in the year 1984 signifying some advantages that the IR granted to the distant consumers.
- A large number of load-center thermal power plants are situated within the distance slab of 500 to 1500 km and these stations do not get the benefit of telescopic advantages
- Granting telescopic advantage to consumers beyond 1500 km does not help the utilities, since most of the power stations are within 1500 kilometer from the source.

In India, the cost of transportation of coal in terms of Rs. Per tonne keeps on increasing as the distance from the source increases, though the rate of increase changes for different slabs. The slope of the curve has been getting sharper over the years signifying sharper increase in freight charges. The freight rates for 1500 km has been almost doubling every 5 years initially but the increase has been less in the recent past. This is clearly seen from the Table 2.3 and the Figure 2.3.

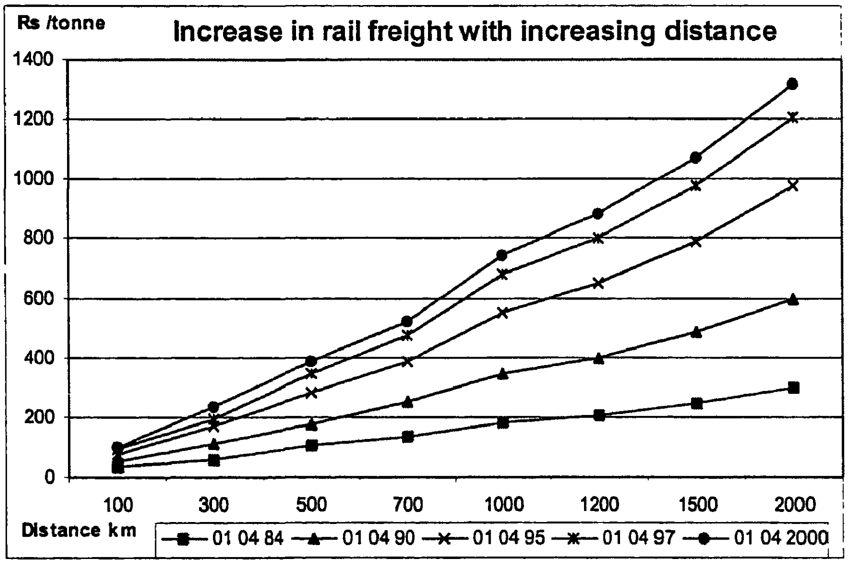

Figure 2.3 Rail freight for coal transport (rupees/tonne)

Table 2.3 Rail freight for coal transport for selected slabs (rupees/tonne)

	Freight in Rs per tonne with effect from				
Km	01 04 84	01 04.90	01 04.95	01 04 97	01 04 2000
100	33 40	50 20	74 30	91 50	101 80
300	59 00	113 20	170 00	190 40	234 50
500	102 70	178 00	278 70	343 40	384 20
700	133 70	250 80	386 10	475 70	522.50
1000	180 20	342 90	550 60	678.40	746 20
1200	206 20	395 70	651 60	802 80	883 00
1500	245 10	487 50	792 50	976 50	1074 60
2000	296 80	597 00	981 00	1208.60	1317 30

This is in stark contrast to US rail freight rates in $ per tonne for coal which continue to decrease sharply as the distance increases. At 1500 km, it is the same as that at 700 km, it is even lower than that at 1000 km. This reduction in rate with longer distances is logical as the fixed costs are spread over a greater number of tonne/km. Figure 2.4 shows the comparison of freight costs over a distance of 0 - 2000 km for India and USA in $ per tonne. Since the rates in US are contracted by various consumers with the railroad companies in $ per short ton, and in India it is in Rs per tonne, both have been converted to $ per tonne and a trend line fitted While in the US rates, trend show a convex curve over the 0-2000 km range signifying lower cost for longer distance, Indian rate trend curve is a constantly rising straight line signifying ever increasing cost with distance.

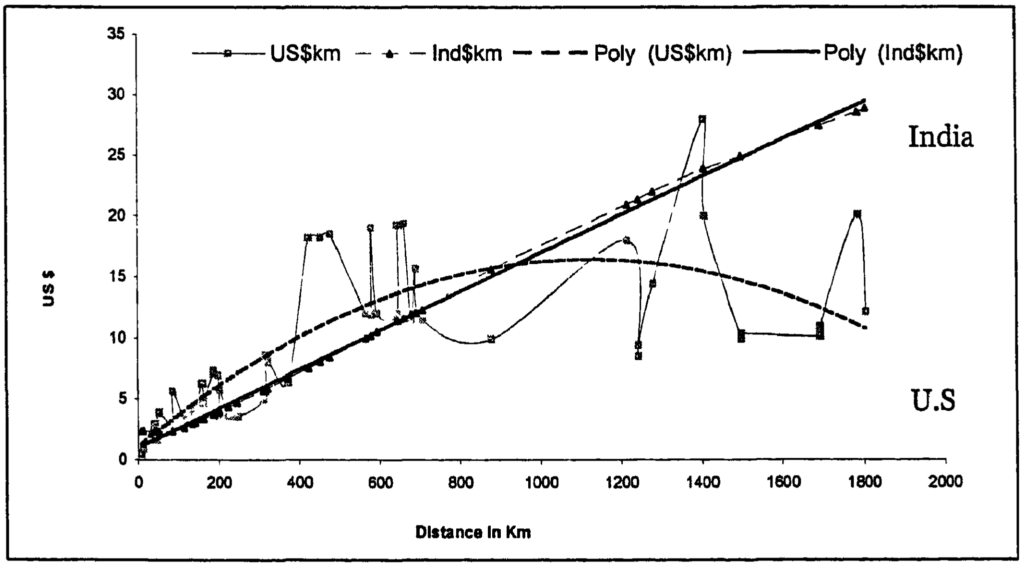

Figure 2.4 Telescopic advantage for long distance transport of coal in India and USA

The trend of tariff being lower for longer distance compared to shorter or medium distances may sound anomalous in Indian context. This is possible only when consumers have a choice for selection of transporter and capacity of transportation available is in plenty. IR being a monopoly, and always short of capacity, this choice is not available to Indian consumers yet. Nevertheless, distant bulk consumers do deserve some relief if use of indigenous coal has to be encouraged and IR has to hold its share in coal transportation.

Route rationalization

Rule 125 of Goods Tariff No 41 (Part 1) has two parts; one regarding carriage and another regarding charging. According to the rule, the goods should be dispatched or carried by the shortest route and should be charged by the cheapest route. This general principle would apply only when there is no definite directive from the sender to carry any particular consignment by any particular route. The railways under route rationalization carry coal by a longer route to some power stations and the freight is charged for longer route. As per the Railway Act, the power given under Rule 71 are to be sparingly used and for temporary periods. On many occasions railways do not follow this Rule and the power stations has to incur additional freight.

Railway risk

Almost 99% of commodities are booked by railways on 'railway risk' basis with normal freight. For coal it is on 'owners risk' basis and railway's charge 20% extra freight in booking coal on 'railway risk' basis. Cement industry, power sector, fertilizer sector and even CIL pointed out to the Railway Fare and Freight Committee[4] about the heavy shortage during transit The committee suggested that IR should charge 5% extra for covering the risk and re-weighment of wagon at the delivery point was suggested. This will be more in consonance with a reported loss of about 5% during transit. The consumers who are incurring a loss of more than 5% will then like to book their consignment on 'railway risk'.

Reasons for loss in Transit (Excluding underloading)

The factors affecting loss during transit are summarized below.

- Loss of external moisture *(varies with season, less in monsoon)*
- Due to fugitive dust *(more in summer and dry loaded coal)*
- Leakage from

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[4] Annexure 2 2, para 25.4 6, pp 99

  - Damaged /repaired floor of the wagon
  - Badly closed /damaged doors
- Theft of coal from wagons
  - By picking larger pieces from the top of the wagon
  - By opening the gate of the wagon for smaller coals

Theft of coal again depends on many factors such as

- Quality of coal *(higher grades more prone compared to inferior coals)*
- Area/ locality through which the coal is required to travel *(generally, more loss in densely populated eastern sector)*
- Need for coal in the area *(domestic use more in eastern sector)*
- Length of the route on which the coal travels *(short hauls are more prone)*
- Railway yard where the loaded wagons are stabled temporarily *(more if the loaded wagons are stabled for long periods, specially in the night)*
- Number of stoppages on wayside stations due to signal/ hot wheels and connivance of railway staff etc.
- Type of traction used *(is likely to be less on electrified routes)*

However, the risk associated with transportation/shipping in terms of loss, delays etc. should primarily be allocated to the transporter except for clearly assignable default on the part of producer or consumer. Currently, the Railways Act limits the liability of the Railway. There are provisions in the tariff schedule for the transfer of the risk to the railways but the tariffs become even more excessive. Remedies/penalties for such default should be formulated and provided for in the coal supply agreements between producers or the consumers and the transporter. The option of tripartite agreements with the transporter and producer/consumer are also open.

Diversion of rakes

Since coal is treated as a bulk commodity by the railways, they do not differentiate among different grades of coal during transportation. When coal rakes of powerhouses are diverted indiscriminately, power stations are affected due to the receipt of different grade of coal and other associated problems. Even though railways maintain that this is done to help the power stations, the mere volume and incidence of diversion indicate that most of this is done due to their own operational reasons or deficiencies for which power stations are made to suffer. The Railway Board[5] has clearly laid d own the provisions under which diversion can be done. These are as follows·

- Coal rakes are to be diverted in exceptional cases such as due to accidents or breaches or civil commotion or heavy congestion etc.
- The decision to resort to such diversions will be taken personally by the COPS (Chief Operating Superintendent), who will order such diversions in writing, specifying reasons, which lead to such diversions.
- Coal rakes consigned to one power station should be diverted only to another powerhouse drawing similar grade of coal.
- Coal consigned to a private party will not be diverted except with the prior written consent of the party concerned.

The quantum of diversion belies these provisions and it appears that diversions are a routine affair most probably with ex-post facto approvals. Power station have been having outstanding dues for years together i.e. one sided diversions resulting in blocking of their money in crores of rupees. Generally, the diversions take place without considering the suitability of coal in the diverted rake to the receiving powerhouse and are a big irritant to the powerhouses. In theory, this provision of taking consent gives preferential treatment to private parties over state utilities. In practice, it is not followed even for the private utilities.

Overloading and underloading

The CC (Carrying Capacity) of a wagon, which is marked on the body of the wagon, is the limiting amount that can be loaded in to it. Prior to January 1997, IR allowed a margin of 2 tonne in such loading. Thus, if the CC of the wagon was 58.8 tonne, it could be loaded up to 60.8 tonne without paying for underloading or overloading. Underloading charges was applicable only if the load was less than CC i.e. 58.8 tonne. Similarly, overloading charges became applicable only if the load was more than 60.8 tonne. After January 1997, IR[6] removed this margin of 2 tonne. Loading above 60.8 tonne attracts overloading charges and anything below this quantity attracts underloading charges as idle freight. Currently, the idle freight charges are being paid by the coal companies. Under a ruling from the umpires, the overloading charges are shared on a 50:50 basis by the utilities and coal companies. A case is also pending with the Supreme Court in this regard.

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[5] Railway Board letter no 81-TC-III /57/1 dated 16 08 1984

[6] IR circular letters no. NG-2/C/152/G/I/Pt III/R/Coal dated 14 01 1997

The specific gravity of coal varies widely with the type of coal. Some tests carried out show that a maximum of 55 tonne could be loaded in a BOXN wagon with Umrer coal but the same wagon could carry 58 tonne of Kusmunda coal. It is reported that in a study conducted during 15.01.1997 to 31.03.1997 at all utilities under MSEB,[7] it was found that the loads in the wagons were same as before and the expected benefit of two tonne of additional loading did not materialize.

While IR increased the capacity of its wagons without any extra investment by removing the tolerance in loading a commodity like coal, CIL failed to evolve matching loading facility to meet this challenge. The majority of loading is done by pay-loaders which, in the present case, is highly inaccurate. Systems for correct weighing of coal being loaded through CHP can be easily incorporated. It is reported that even pay-loaders can be equipped to load the correct quantity into the wagons.

With increase in the wagon capacity by 2 tonne, the total quantity in a trainload has also increased. IR has accordingly increased the minimum condition to qualify for the trainload freight to 3290 tonne from earlier 3000 tonne and from 54 wagons to 56 wagons from 15.07.1997. The trainload freight is 4% cheaper compared to wagonload freight. It is difficult to maintain such tight parameters especially when the number of wagons supplied in a rake is not within the control of its user. Moreover, many a times, sick/damaged wagons are supplied as a part of the rake which, in any case, can not be loaded at all, making the wagonload freight applicable which results in more earnings to IR at the user's cost.

Unloading time and demurrage charges

Power plants have approached the railway for rationalisation of unloading time and for application of uniformity to all sectors. It is reported that steel plants are allowed additional terminal allowance, bunching allowance, block rake allowance, monsoon allowance, construction allowance and unfit wagon allowance. Another feature of steel plant free time rules is that steel plants are given credit for wagons hours saved by release of wagons early and credit hours are adjusted against debit hours on monthly basis. They are also given a rebate of 20% on free payment of the undisputed amount of the demurrage bill within 10 days of submission of bill, which is not given to other bulk users. The details are as follows.

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[7] Presentation by Sri P K Kude, Director (Tech) MSEB in the 29th meeting of Governing Body and CPU 02.11 2000

- Unloading time for box rakes
  - 20-24 hours for steel plants
  - 10 hours for power stations
- Terminal allowances
  - 3 hours for steel plants
  - Nil for power stations
- Bunching allowance
  - 3 hours for steel plants
  - Nil for power stations
- Monsoon allowance
  - 2 hours for steel plants
  - Nil for power stations
- Adjustment of hours saved in unloading
  - Allowed for steel plants
  - Not allowed for power stations

Some other issues, which need to be addressed by the IR are surcharge on freight, rechecking of tare weight of wagons, and delayed rake removal etc. Most of these issues have been discussed in various meetings over the last three decades without resolution. These were raised by various consumers with the Railway Fare and Freight Committee[8] and the relevant recommendations of the committee are annexed at 2.2. Most of them are still pending with the IR for implementation.

Conclusions

- Decontrol of price and distribution took place with the repeal of CCO 45. However, the sector continues to be a monopoly with all the command and controls.
- Linkages granted to various sectors over the years are not optimal and are based on the convenience of IR and CIL
- Short term linkage committee has lost its relevance, especially in view of the FSA being signed with various consumers, particularly NTPC and other utilities

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[8] Constituted by GoI under ERB-1/91/23/25 date 24.10.1991, the Committee submitted its final report on 31 12.1993

- There are large numbers of unaddressed issues related to transportation by rail. IR being a government monopoly has not been very flexible.
- The cross subsidization of freight and passenger traffic with coal freight has resulted in very high rates The telescopic advantage given to long distance consumers of coal has been reducing year after year
- The coal and power sector has been discriminated against other sector like steel in terms of facilities granted to them.

Suggestions

Suggestions for addressing some of these problems are given below:

- There is an urgent need to examine all linkages and workout the optimum linkage, keeping in view the need of bulk consumers for quality, quantity and cost. The coal production plans and rail movement plans may have to make adjustments to achieve this. Both coal and rail sectors are going to lose if this is not done urgently.
- As the market is opening up and more competition is emerging, coal sector has to be more concerned about the needs of its bulk consumers.
- Supplies of right quality and quantity have become more important than it was ever before. Linked quantity and quality of coal at the decided share must be supplied from minimum number of sources
- Similarly, the IR has to put its act together before it loses more market to other modes of transportation Cross subsidization has to be reduced and finally eliminated so that coal remains as the mainstay of our nations energy supplies
- There is a need for rationalization of freight on coal. Extra realization from coal traffic should be removed and long distance coal consumers must get the telescopic benefit or else, there is a chance of these consumers shifting to alternate fuel supplies. Telescopic effect of freight should be restored to the level as obtained in April 1984
- Coal rakes booking should be accepted on a 'railway risk' basis within the same freight as for many other commodities
- Diversions of supplies must be kept to the bare minimum if it can not be eliminated all together. It must be transparent and with consent of the consumer.
- Weight of coal loaded into the wagons should be more accurate to reduce the problems of overloading and under-loading.

3

Coal quality and related issues

Grading of coal seams

Pre-nationalisation period

The Colliery Control Order 1945 authorized the Central Government to prescribe the classes, grades, and sizes into which coal may be categorized and the specifications for each class, grade, and size of coal. Under the Colliery Control Order 1945, the Coal Commissioner carried out the grading of coal seams in the collieries till 1952 when this activity was entrusted to the Coal Board. Coal sale to small consumers was on the basis of grades of coal seams declared by the Coal Board. However, the bulk consumers like steel plants, cement plants, thermal power plants, railways, which did not have their own captive collieries made arrangements for quality determination either at the loading points or at their premises. There were only a few coal fired thermal plants, and these consumed good quality coal. Most of the coal production was achieved by selective underground mining at the collieries operated mostly in the private sector. The quality of coal produced and despatched usually matched with the grade of the coal seam as determined by the Coal Board in case of most collieries. The coal producers readily redressed the complaints of the consumers on quality. The coal trade was free from Government controls and functioned on basis of trust and faith between the seller and buyer.

Post-nationalisation period

After nationalization of coalmines, the Coal Board was abolished in 1974 and the coal companies were empowered (under clause 3A of Colliery Control Order 1945) to declare the grades of coal seams mined by them. The CCO (Coal Controller's Organization) was given the following additional responsibilities.

- lay down the procedure and method for sampling and analysis of coal for the purpose of declaration and maintenance of grades of coal mines in a colliery
- carry out test checks wherever felt necessary for verification of grades notified by coal companies for different coal seams mined by different collieries every year and

- act as an appellate authority for looking into complaints by consumers on coal quality

System of coal grading at the collieries

The Colliery Control Order 1945 stipulated that based on the seam samples, a provisional grade should be fixed by the Coal Controller. On the basis of wagon samples drawn as per specification, the final grade of the seam or seams of a particular mine / colliery should be fixed. But under the Colliery Control Order 2000, there is no clause on grading of seam based on wagon sampling. During mining operations, the shale and stone bands in the seams and over burden material get mixed up with the coal, thus affecting its quality. Therefore, the "final grade" of coal actually dispatched is important for commercial transactions. This was very specific in the Colliery Control Order 1945 and is now missing in Colliery Control Order 2000. However, the system was not fully practiced even during the period CCO 45 was in operation.

Under Clause 4(2) of the Colliery Control Order 2000, the coal companies are empowered to declare the classes, grades, and sizes of the coal of any seam or section of a seam in a colliery in accordance with the prescribed procedure as laid down by the Coal Controller. All the coal companies declare the grades of coal seams being mined by their collieries at the beginning of every financial year. The seam sample will seldom give the same results as those of a run-off mine sample. This is because obvious dirt bands exceeding 10 cms in thickness are excluded in the seam sample, whereas they form a part of the coal when it is mined. Some companies (CCL, SECL, and WCL) have also declared the coal grades at their railway sidings (loading points). The declared grade of coal seams being mined is of less interest to the consumers and what is more important is the "declared despatch grade" of coal from a loading point.

Coal supplies to power plants

Introduction to quality problems

Each power plant is designed for a particular quality of coal. The responsibility to supply the right quality of coal to meet the desired parameters of the power plant is accepted by the coal producers. But the quality of coal actually supplied to the station varies and was generally reported to be inferior to the design / linked quality. The ill effects of using lower grade coal on the performance of the boilers are well known and documented. One of the major causes of quality deterioration is the increase in the share of coal production from opencast mines over the years. The other major reason is the absence of a proper coal handling system at the loading point.

The consumers should be required to pay as per the actual quality of coal received. The coal companies raise bills for the coal supplies on the basis of grades notified for coal seams with payments insisted on the declared grades, whereas the actual grades of coal as received by many power stations were reported to be lower. The coal producing companies generally did not accept the complaints on the supply of inferior grades of coal and insisted that the consumers can check the quality of coal at loading points before despatch. Since, there were as many as 200 loading points and a large number of personnel would be involved in joint sampling at loading points, utilities could not depute their representatives to the coal mines. Moreover, the demand-supply situation was one of shortage in coal availability in the 1970s and early 1980s, and the power utilities did not have any option for forcing the issue of joint sampling at the power station end. During this period, the coal bills were raised and payment insisted, based on the declared grade of coal by the collieries.

Chronology of meetings on coal quality

The grade slippage issue has been discussed at the highest levels in the government with both producers and consumers (power sector) on numerous occasions over the years.

1. This matter was reviewed in a high level meeting taken by the then Minister of Energy, Government of India on 11 September 1977 and based on the discussions a draft agreement for sale of coal, which included joint sampling of coal at the power plants was prepared. However, the agreement was not signed between the coal producers and the utilities.
2. In 1982, the power utilities requested for sampling and analysis at the power stations on the ground that facilities for such sampling and analysis were not adequate at the loading ends.
3. The matter of joint sampling was again taken up in the Power Ministers Conference held on 27 August 1982 and the Minister of Energy again directed the Department of Coal and CIL to carry out joint sampling at the power plants. However, this was not implemented by the coal companies.
4. In 1983, Ministry of Energy, Government of India set up a Committee under the chairmanship of Mr. Mohd Fazal (Member Planning Commission) to study the problems of coal supply and quality to TPS.
5. Another high level meeting was convened by Secretary, Power with all concerned agencies including Department of Coal, CIL, SEBs, etc. on 4 July

1984, wherein the broad terms and conditions for the agreement for coal supply were reviewed. Once again it was decided to carry out joint sampling at thermal plants for final adjustment of provisional payments made on the basis of initial sampling at the colliery end. A model draft agreement as evolved by Department of Power in consultation with Department of Coal was circulated in November 1984 to all public sector utilities and CIL for execution on long term basis. Certain private utilities were, however, not included. Most of the utilities executed the agreement with CIL on the lines of Model Draft Agreement by March 1985, initially f or one year with a provision for further renewal. As per the agreement, 'the joint sampling of coal was to be carried out at the power station end by the representatives of CIL and the power station authorities for finalizing the payment for coal. In case of power stations receiving coal by means other than rail, joint sampling is to be done at loading points'.

6 At the time of renewal, however, the coal suppliers expressed the view that joint sampling of coal should be carried out at the loading end only. On 31 January 1986, the Minister of Energy held a meeting to consider the points for which, the coal suppliers sought the revision of the then existing procedure. After considering all the points put forward by the coal authorities, the minister decided that joint sampling of coal would continue at the unloading end only.

7. In a meeting taken by the Hon'ble Minister of Energy on 22 December 1986, it was suggested that an organization be formed within the CEA for the purpose of sampling coal at the loading end. This proposal was examined by the CEA and was not found feasible since a large contingent of 800 personnel to cover the 200 loading points (as against 45 unloading points) was required.

8. In the meeting taken by the Hon'ble Minister of Energy on 7-8 July 1987, CIL made a proposal for appointing a contracting agency for sampling of coal at the loading end. This was not found feasible either, as the sampling results of a private contracting agency could not be relied upon for fairness and the results could prove detrimental to the interest of either or both the parties.

9. Since the CEA made no move in the matter, the coal companies themselves invited tenders and appointed public analysts for sampling and analysis of coal at the loading points. This process, was, however resisted by the power utilities.

10. In 1989, although CIL officers were posted in the power stations, they were not participating in the joint sampling at some stations.
11. Since 1989, certain private utilities like CESC continuously appealed for joint sampling but this was not accepted by CIL.
12. In 1990, in view of the increasing complaints of coal quality slippage from collieries of CCL, the Chairman CIL appointed an in-house committee for improving customer satisfaction in coal dispatches.
13. The Department of Coal again raised the issue of joint sampling with the Cabinet Secretary in a meeting of the Committee of Secretaries held on 15 May 1990, wherein the Secretary, Programme Implementation, was appointed to delve into the issue.
14. After due deliberations and meetings, it was decided in a meeting held by the Secretary, Programme Implementation, on 12 June 1991, that the present scheme of joint sampling should continue at the power station end.
15. Meanwhile, the CIL initiated unilateral action such as withdrawal of their representatives from certain power stations, non-participation in the sampling of coal for power units, as well as the non-posting of their representatives at new power stations.
16. The Department of Coal/CIL brought up the issue once again in the meeting of Standing Committee of Secretaries held on 15 October 1991. The following decisions were taken.
    - The quality of coal supplied to the major consumers has substantial scope for improvement by the installation of coal-handling plants (CHPs) and washeries at the collieries. The coal companies should, therefore, undertake a properly planned programme of installation of CHPs at all collieries to ensure proper sizing, grading and quality assurance of coal supplied.
    - With a view to ensure coal quality assurance, inspection of the coal despatched from the collieries should be done by an independent third party agency, preferably through the Coal Controller. The machinery for such inspections may have to be suitably augmented and such augmentation should be on a self-financing basis by charging a reasonable fee for all inspections and quality assurance measures. All such quality inspections should be done at the colliery end before despatch and not at the consumers' end after despatch.
17. The Ministry of Power requested for an amendment of the minutes to the extent that joint sampling at the power station should continue till the third party organization was appointed by CIL in consultation with CEA. CIL

however issued a notice for shifting the joint sampling site to the loading end from December 1991.

18. The subject was again discussed in a meeting taken by Minister of State for Coal on 17 December 1991 and attended by Secretary [Coal], Secretary [Power], Secretary [Coordination] and Chairman, CIL. In this meeting it was agreed that:
    - Coal companies should ensure that electronic weighbridges are provided at each and every loading point and that the existing non-functioning electronic bridges be made operational.
    - Sampling of coal be carried out both for the coal seams to evaluate the grade of coal being mined and also in the railway wagon after the coal has been loaded for dispatch.
    - The details of the sampling at the loading point and the creation of a third party organization under the Coal Controller were to be worked out by the MOC and CIL in consultation with the Department of Power and CEA.
    - CIL was to establish a system whereby claims of the power utilities on account of the shortfall in quantity/grade of coal should be settled within a period of 15 days.

    However, CIL, without implementing any of the pre-requisites as mentioned above, withdrew from joint sampling for supplies from ECL, BCCL and CCL w.e.f. 1.6.92 and from other companies from 15.3.93. It was decided to entrust the responsibility of sampling and analysis with CCO at the loading points.

19. Secretary, Planning Commission in a meeting convened on 4.9.1992 set up a group under the Chairman, HSEB to recommend measures to ensure a coordinated approach in coal supply to TPSs (thermal power stations). The group recommended, inter alia, that conceptually there might be no objection in implementation of the decision of committee of Secretaries on 15.10.1991 subject to fulfillment of certain conditions.
20. Ministry of power pointed out that there are only 45 power stations against 200 loading points. Twice the time was available for unloading as against 5 hours for loading. According to CEA, the joint sampling as per ISI is not possible until coal is passed through Coal Handling Plants (CHPs) and is loaded mechanically and equipment is fitted with automatic and mechanical samplers. In the current situation, joint sampling at the power station end is rational. The report was not considered by CIL.

21. Subsequently, in a meeting held in June 1995, the Cabinet Committee on Infrastructure decided that joint sampling could be carried out at loading end where necessary infrastructure facilities for sampling and analysis were available. At those loading points where such facilities are not available joint sampling could be undertaken at the unloading points where facilities were available The decision required an assessment of the facility for sampling at the loading and unloading points.

    The MOC, in its assessment report indicated that adequate sampling facility, laboratories and weigh bridges were available at loading points. In 1996, CEA also carried out a survey of the facilities existing at the loading points. It was reported by CEA that sampling is manual for all rail loading points and sample collection and preparation equipments were largely absent.
22. As the SEBs have frequently been raising doubts about the impartiality of CCO, it was decided to strengthen CCO by posting matching manpower from the various SEBs so that joint sampling at the loading end could be done under CCO's umbrella but manned by personnel from the SEBs as well as the Coal Companies. This decision was jointly taken by the Ministry of Power and MOC on 24 April 1996, SEBs, however, did not post their personnel at the loading ends.
23. As CCO results were being doubted by the SEBs/PUs, the utilities started unilateral sampling at their end and withheld part payment attributed to grade slippage. Coal companies continued to take the stand that CCO was an independent organization under the MoC. In order to settle the issue of disputed payments, Umpires were appointed at the instance of MoC to sort out all types of disputes viz., grade mismatches, stones/boulders/materials, quantitative shortages, overloading/underloading charges etc. Coal companies and the public utilities were advised to put their respective claims etc., in monetary terms. For the period after March 1995, the issues were being settled bilaterally for payments through reconciliation proceedings. However, private utilities were not extended this facility.
24. The CPU has been holding dialogue with the different authorities, to find a realistic solution to this problem of quality disputes. A meeting was taken by the Secretary (Coal), with a delegation of CPU members on 16 September 1997. This was followed by a meeting on 18 October 1997 by Chairman, CIL and Joint Secretary (Coal) with CPU/power utilities when the following consensus emerged:

- Joint sampling at both the loading and the unloading ends could be undertaken and should be done by the same organization
- Apart from the Coal Controller's Organization, the services of other reputed, professional organizations could also be utilized for this purpose.
- Costs of sampling would be borne by the coal companies at the loading end and by the utilities at the unloading end.

In subsequent meetings between the SEBs and coal companies, the modalities for implementing the above decisions were discussed. CPU also prepared a list of third party independent agencies for undertaking coal sampling and analysis.

25. Another meeting on this subject was held on February 17, 1998, in which the representatives of the MOC, Ministry of Power, CEA, Power utilities, CPU, CIL and the Coal Controller were present. The following decisions were taken:
    - **Sampling at both ends.** The sampling and analysis of coal at both the loading and unloading ends will be carried out by the same independent organization. For the purpose of the sampling and analysis, the country has been divided into four regions with the names of thermal stations identified in each region according to the source of coal supply.
    - **Sampling and analysis on a rake-to-rake basis.** Sampling and analysis will be done on a rake-to-rake basis. It was also agreed that railway wagons would not be detained over and above the present permissible period.
    - **Sharing of cost for sampling and analysis.** The cost of sampling and analysis would be borne by coal companies at the loading end and by the SEBs/utilities at the unloading end.
    - **Third party agencies.** Sixteen agencies were short-listed jointly by CIL and CPU for consideration to undertake sampling at both ends. It has been agreed that the list of agencies can be widened. Any party/agency either from this list or outside this list but acceptable to both the parties can be awarded the work of sampling and analysis at the loading as well as the unloading points.
    - In case of any difference in the test results between the loading and unloading ends, the referee sample will be tested in an established and recognized government laboratory and the test results will be acceptable to both parties.

- **Procedure for sampling.** Prevailing Indian standards will be made applicable at both the ends for sampling purposes.
- CCO may be considered as one of the independent agency for participation in sampling/analysis at both the ends, once the same is made self-supporting and independent.

Role of coal controller's organisation

From 1986 onwards, based on an Agreement for coal supplies between coal companies and SEBs, the payment for coal bills was based on the results of the joint sampling carried out at the power stations. Private utilities were not covered under this arrangement. Even though the coal companies were not satisfied with this arrangement, the system continued till 1992, when a decision was taken to shift the joint sampling site to the loading points and entrust this job to the Coal Controller. Accordingly, the MOC established a quality control cell in the CCO with officers and staff mostly drawn from CIL and its subsidiaries. The cell with its headquarters in Calcutta and 8 regional offices started functioning in 1992. The main function of the cell was to take samples from loading points and to assess the quality of coal despatched in an impartial manner. Total coal supplies to power plants and other major consumers were to be covered. In addition, the cell was to identify the sources showing variation from declared grade of coal and/or presence of excessive stone, extraneous matter in the coal dispatches. This cell was to inform coal companies and the Coal Controller about the sources which show consistent slippage of grade for revision of declared grade.

The results of sampling at loading points carried out by the CCO for 1997/98, 1998/99 and 1999/2000 are given in Annexure 3.1. A brief summary of the results is given in Table 3.1.

Table 3.1 Summary of sampling by Coal Controllers Organisation (1997-2000)

	1999-00		1998-99		1997-98	
Company	No of Samples	Same[a]	No of Samples	Same[a]	No of Samples	Same[a]
MCL	1181	955 (81%)	4205	3454(82%)	3692	2912(79%)
CCL	871	508 (58%)	3607	2167(60%)	4420	2484(56%)
SECL	874	571(65%)	6552	4783(73%)	8426	5808(69%)
WCL	1434	640(45%)	7582	5291(70%)	9008	5792(64%)
ECL	6854	5043(74%)	7503	6515(87%)	12032	10297(86%)

[a] within declared grade

Note NCL was not covered by CCO, BCCL - Data not available

Observations of SEBs on the role of CCO

The observations of the SEBs on sampling of coal at the loading points are as follows.

1) The sampling of coal should be carried out at a place where it was most convenient, which was the power station site, as the time available for unloading was twice as much as the time allowed for loading. Moreover, the activity of unloading and sample collection was parallel at power station end, while at loading point, it had to commence after rake was loaded and the total time was limited to 3–5 hours.
2) The mechanical method of sampling coal from belt conveyers could not be used at most of the loading points as loading in wagons was mostly through pay loaders and not through proper CHP and belt conveyer system.
3) There are more than 200 loading points from where coal was loaded into railway wagons for thermal power stations in the country. On the other hand, there were only about 45 thermal power stations, which received coal by rail. Posting of CIL staff at the power station site for joint sampling purpose would eliminate the need for a large manpower and a separate organization under the Coal Controller.
4) Use of CCO for sampling to determine grades of coal supplied to power stations has diluted its role as an appellate authority to redress the complaints of SEBs/Power utilities on supply of coal of quality inferior to that charged in the bills.
5) Coal Controller modified the sampling procedure so as to collect samples from 10% wagons in a rake instead of 25% as provided in the relevant BIS. Therefore the coverage of wagons for sampling was inadequate. In addition the sample is to be collected up to a depth of 1.5 metres instead of the full depth of the wagon. In absence of availability of mechanical crushing facilities in the coal testing laboratories at loading points, the samples were prepared by manual crushing In this process all pickable pieces of stones and shale were removed from the prepared sample thereby destroying the representativeness of the samples collected from the loaded wagons.
6) The power stations claim that sampling through CCO has covered only about 23% of the total coal despatches. The coal companies have billed the balance coal as per 'declared grade'. Although the CCO continued to carry out the sampling, SEBs/public utilities did not consider them impartial as the required manpower was mostly drawn from the coal companies. The situation did not evoke confidence in the power stations on the correctness of results of the sampling at the loading end.

7) The Coal Controller did not produce a written procedure for sampling and testing even on repeated demand by CEA and it is obvious that whatever sampling was being done was according to personal knowledge or involvement of the incumbent. In fact, all the despatch points were not even manned by the representatives of Coal Controller. Thus, this organization was neither complete, nor independent and whatever sampling was being carried out was neither as per BIS nor any uniform and written down procedure of sampling and testing was laid down.
8) Although elsewhere in the world sampling of coal was done at the collieries, it must be appreciated that nowhere in the world coal taken from seams without passing through coal handling plant was loaded by pay loaders into the wagons. Proper sampling could be done only if the coal was passed through Coal Handling Plants and the loading was through a system providing mechanical sampling from belt. Availability of these facilities (though being promised for long) is greatly lacking with the coal companies in India except for the MGR loading system of NTPC stations. While the back-up system of loading, sampling, and processing of coal in Indian coal mines is poor, any reference to world practice is of little meaning and only confuses the real issues and drawbacks in sampling at the loading end.

Role of umpires for resolving disputes between SEBs and coal companies

Non-payment of coal bills to Public Sector coal companies for coal supplied to the SEBs/other public sector utilities has been causing serious concern. There have been large outstandings on account of disputes raised by power utilities on grounds of quality and quantity of coal supplied to them by CIL. This matter was discussed by the Committee of Secretaries in a meeting held on 17 March 1994, and it was decided to appoint 'Umpires' for resolving disputes on coal supplies between SEBs and coal companies. Accordingly, the MOC appointed four Umpires in May 1995 (copy vide Annexure 3.2) and the details are as under.

Shri V Krishnan	U. P State Electricity Board, Rajasthan State Electricity Board and Karnataka Power Corporation
Shri R K Tikku	Punjab State Electricity Board, Haryana State Electricity Board, Badarpur Thermal Power Station and DESU
Shri R Srinivasan	Tamil Nadu and Andhra Pradesh State Electricity Boards
Shri B Vijayaraghavan	Maharashtra State Electricity Board and Gujarat Electricity Board

Only those issues were to be referred to Umpires for award, which remained unresolved after mutual discussion between the state utilities and CIL. This facility of dispute resolution by the Umpire was not available to private sector power utilities. Further, it is noted that state electricity boards of West Bengal, Bihar, Orissa, Madhya Pradesh were not covered by the four Umpires.

Most of the cases referred to the Umpires relate to the deductions made by SEBs on the coal bills for the period from 1984-85 to May 1995. The parties (SEBs/coal companies) are directed by the Umpire to carry out verification/joint reconciliation exercise of the claims and counterclaims on each other based on the Umpires interim awards. In this manner many of the outstanding issues are bilaterally settled.

The issues covered in the dispute resolution process are as follows.

- Compensation for shale and stone
- Grade slippage in quality of coal supplies
- Compensation for excess moisture of coal supplies
- Short receipt of coal by rail
- Refund of excess freight on account of booking of wagons on wagon load basis
- Payment of demurrage by SEBs
- Overloading penal freight
- Statutory levies
- Interest claim by coal companies on account of delayed payment of coal bills
- Diverted rakes.

Extracts from some of the judgments given by the umpires

- Liability of penal freight for overloading to be shared equally by the coal company and SEB.
- For diverted rakes, results of joint sampling at power stations should be the basis of payments
- Coal quality - payment to be based on the results of sampling by CCO wherever adequate sampling has been done (as assessed by the Umpire). In case of inadequate sampling, payment is to be based on the average results of grades determined for coal received from the same source during the last two years when joint sampling at power station was in vogue (CCL and BCCL supplies to PSEB)
- In some cases where grades slippage has been established (after a quantification exercise) during the non-joint sampling period, the SEB is

entitled to reimbursements of the difference between the cost of coal billed and the grade actually supplied (supplies from ECL and MCL to TNEB).

- For refund of statutory levies due to grade slippage, the coal companies have been directed to approach the concerned state governments for the refund of the same, which will be paid to the SEBs.
- In some cases the quality deductions have been settled at a flat rate on the basic price of coal (SECL and MCL supplies to MSEB).

Status of third party sampling and analysis

A decision was taken in 1998 to appoint independent third party agencies for sampling of coal at both the loading and unloading points. Subsequently based on discussions between CPU and CIL, 16 parties were shortlisted (Annexure 3.3). Since March 1999, independent third parties have been appointed from time to time by the Coal Companies and the SEBs through joint tendering process. Some other SEBs continued to carryout joint sampling with representatives of both sides either at loading end or at unloading end or at both ends on mutually agreed terms.

In case of third party sampling, results of both loading and unloading ends are averaged out for determining the coal quality. If the two results differ by 5% or more of the average UHV and also correspond to different grades, referee samples of both ends are to be analyzed at mutually agreed Government / Public Sector Laboratory. 5% cushion has been empirically arrived at in CPU Model Draft Agreement to accommodate tolerance in the estimation of ash and moisture at loading end and unloading end and to achieve averaging effect.

The current status of appointment of third party for sampling and analysis is given in Annexure 3.4. In order to review the performance of the third party systems for sampling and analysis, data / information was collected from CIL and selected SEBs. The details are given in Annexure 3.5 and 3.6.

Along with the introduction of third party / joint sampling arrangements the following benefits are expected:

- Dispute related to coal grade is likely to be reduced
- Supervision at either end by both seller and buyer.

Drawbacks observed in the third party system

Even though a detailed evaluation of third party performance has not been carried out, some drawbacks, which are observed, are given below.

- The period of contract is generally for one year. Due to uncertainty in renewal of a contract , the third party agency may not be interested to invest in sampling and other equipment
- Since adequate investments on equipment and other facilities for sample collection and preparation are not being made by the third party agencies, sampling and preparation are mostly manual. This leads to unreliable results and also possible manipulations.
- The party is selected on the basis of lowest rates quoted for the job. The composite rate for sampling, analysis, and documentation, etc., awarded to different parties varies from 20 paise / tonne to more than 1 rupee / tonne of coal despatches. It's not understood as to why there should be so much variation in the rates for different parties for similar type of job A floor price should have been decided by the concerned SEB and coal company
- In one instance, a coal company has unilaterally terminated the work order awarded to a third party without consulting the utility. This is a violation of the agreement and does not help in building confidence in the process
- In another instance a utility has reported that they are not satisfied with the performance of the third party whereas the coal company differs with the view of the utility
- In another instance, it was reported that a joint tender floated by a coal company and utility have not attracted enough parties to bid for the job
- Some of the parties were awarded the work but they could not start the job at the loading points due to their lack of experience in coal mining areas
- Many utilities (e.g. NTPC) have not considered a third party as a viable alternative to joint sampling. They prefer to adhere to joint sampling system, which is more practical and effective.

Joint sampling

One of the reasons why formal agreements have not been entered into between coal companies and the SEBs/Utilities is that there have been persistent differences of opinion between the parties regarding the venue of joint sampling. The venue has shifted many times in the last two decades leading to large number of outstanding payments on account of quality disputes. Recently sampling at both ends by the same party (third party) has been started as given above. Some powerhouses have opted for joint sampling with coal companies and details are given Annexure 3.7.

Infrastructure facilities at loading points

A summary of infrastructure facilities available in collieries / loading points for despatch of coal to powerhouses as on 01.06.1995 is given in Table 3.2.

Table 3.2 Infrastructure facilities at loading points (status as on 01.06.1995)

Company	No of sidings	Mechanical sizing by Coal Handling Plant/ Feeder Breaker	Sizing/ crushing capacity of CHP/FB MT	Weigh bridges Mechanical	Weigh bridges Electronic	Laboratories for sample analysis
CCL	27	25	32.38	-	27	15
BCCL	28	22	28.59	-	19	21
MCL	12	11	27.41	-	7	6
SECL	35	35	40.78	-	30	10
WCL	20	20	26.76	-	20	11
NCL	9	9	26.30	-	6	5
ECL	67	28	22.46	5	8	12
NE	2*	-	-	-	2	2
Total	200	150	204.68	5	119	82

Source *Coal India Marketing report June 1995* **partly supplying to power*

- Infrastructure for sample collection and preparation is reported to be manual for most loading points
- For coal supplies to NTPC's pit head power stations, mechanical samplers are installed on belt conveyors in CHP/Silo

In 1995, there were 61 CHPs and 6 Silos in operation. The details of quantity of coal crushed / sized through CHP/Silo/FB are given in Table 3.3.

Table 3.3 Crushing/sizing facilities at loading points (status as on 01.06.1995)

Company	Crushing/ sizing (million tonne) CHP/FB	CHP/Silo	FB	Total
CCL	4.28	3.36	8.50	16.14
BCCL	0.50	2.26	15.55	18.31
MCL	0.00	11.21	18.21	29.42
SCCL	0.00	22.22	2.85	25.07
WCL	1.00	12.12	3.42	16.54
NCL	0.00	32.20	5.00	37.20
ECL	8.26	5.92	4.40	18.58
Total CIL	14.04	89.29	57.93	161.26
% of Total	9%	55%	36%	

Source Coal India Marketing report June 1995

An analysis of the data shows that only 55% of the coal was processed through CHP /Silo, 36% was processed through feeder breakers and about 9% was processed partly through CHP and partly through FB It is noted that the companies like CCL, BCCL and ECL handled minimum coal through CHP. These companies supply coal to utilities in West Bengal and northern India. The share of these companies in the total coal handled by CHP was only 13%. Almost entire coal of NCL amounting to 32.20 million tonne was being supplied to NTPC through silo. Pay loaders, except in collieries where CHPs were in operation, mostly loaded coal in wagons.

It is reported in the Eighth Plan document of MOC that eighty-three CHPs were operating as on 01.04.1989 but in 1995, the number has come down to 67 only including silos.

The details of the infrastructure facilities at loading points for 1999-2000 were not available, but according to CIL, 100% of the coal despatches were sized either in CHP's or by feeder breakers. It is reported that some of the CHPs, though existing, are not operative and the coal is loaded by pay-loaders. Regarding weighment of wagons before dispatch, it is reported by CIL that about 94% of coal dispatches are weighed through electronic weighbridges and balance through mechanical weighbridges.

Conclusions

- The system of quality assessment for coal dispatches to power plants has undergone many changes since nationalization and is summarized in Table 3.4.[a]

Table 3.4 System of quality assessment for coal despatches to public sector power plants

Period	Quality assessment system	Remarks
1973-85	Sampling at loading points only	Coal bills as per declared grade
1985-92	Joint sampling at unloading points	Coal bills as per declared grade Payment as per joint sampling results at power plants Disputes leading to reconciliation exercise
1992-99	CCO entrusted with sampling activity at loading points	Coal bills as per CCO sample results or declared grade Disputes result in large outstanding on coal bills
1999-00	Joint sampling at both ends with some SEBs Third party sampling at both ends with other SEBs	Coal bills as per average of sample results at both ends Reduction in disputes

- Despite holding a large number of meetings at the highest levels in the government to address the issues of slippage in coal quality, no permanent solution has been arrived at. There is a clear indication of a lack of trust between the seller and the buyer. The supplier, who is a state monopoly, has not shown any concern to address the quality problem. On the other hand, the consumer (SEBs) did not make payments in time for coal received in the past. At present, CIL has been supplying coal to utilities only against 90% or 100% advance payment.

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[a] Some private utilities were not covered in the above quality assessment system

- From a perusal of various documents and reports on consumer complaints, it can be stated that adequate attention has not been given to quality control after nationalization of the coalmines. It is also observed that the same mines which before nationalization used to regularly supply coal of uniform quality and consistent size went substandard soon after nationalization.
- Disputes relating to quality because of grade slippage continued unabated in the 1980s and 1990s. One of the obvious reasons is the difference between the seam grade (in situ) which are probably the declared grade and the dispatch grade, which include dirt bands. There is no system of regular quality audits at the loading points either by the internal quality control department or through an independent agency.
- The Committee of Secretaries took a major decision in October 1991 to shift the then existing practice of joint sampling at the unloading points to the loading points. The decision however, was coupled with another major decision that coal companies should undertake a properly planned programme for installation of CHPs at the collieries to ensure proper sizing, grading, and quality assurance of coal supplies. In 1983, the Fazal Committee had recommended that all collieries linked for coal supply to thermal power stations should have mechanized facilities to load a full rake. It is observed that CIL implemented the joint sampling system at the loading end, but did not implement the decision to plan and install CHPs at the collieries. On the contrary, CIL has gradually and deliberately shifted to the system of feeder breakers for sizing and pay loaders for loading. A typical example is of Ghughus Project where commissioning of the CHP / Silo was stopped at the last phase of its construction and pay-loader loading continues. There has been no addition to the CHPs and it is reported that some of the CHPs are not be in operation.
- With the system of pay loader loading into wagons, sampling is difficult and erroneous. With CHP system of loading, it would have been possible to fully mechanize the system of sampling from belt conveyors in motion.
- With the introduction of third party agencies for sampling and fuel supply agreements, there is a possibility of reduction of disputes on coal quality.

- Third party system can succeed only when there is trust between the seller and the buyer. In the existing atmosphere of mistrust, this system is likely to fail in due course of time.
- The responsibility for maintaining quality of coal despatches lies with the colliery manager, the marketing department and the quality control cell. There is no timely feedback to the colliery manager on deduction in coal bills due to poor quality of despatches. Under this loose system of multi-control, no one is held accountable for slippage in coal quality.

Suggestions

- Greater emphasis should be on quality of coal production rather than on quantity. This can happen only with a strong management will. Strengthening of the quality control department is needed Placement of right persons directly under the CEO of the company and making them independent of the management of the supplying colliery will help.
- Companies should declare grade based on run-off mine coal, (as dispatched), which will result in fewer disputes.
- The only possible solution to avoid quality disputes is to adopt an effective fuel supply agreement with joint sampling arrangement for quality checks.

If it is considered that international practice of sampling at loading end should be resorted to, then the backup system should include the facilities such as coal handling plants, drawing of samples by automatic samplers from running belts and testing in accredited laboratories. The requisite manpower should also be provided to the organization so that all the loading points could be manned round the clock, as loading is done on round-the-clock basis.

4

Coal sampling, preparation and analysis - standards and practice

Introduction

Coal is a highly heterogeneous substance in terms of the inorganic and organic constituents and exhibits wide variability with respect to size and chemical composition of the particles. Sampling is the first step to quality determination of coal. The object of taking a sample is to obtain a quantity of coal representative of the whole mass or lot of coal. The analysis of this sample will determine the overall quality of coal on which the commercial transactions can take place. It is easy to sample a homogeneous material, as any sample of any quantity taken from anywhere will represent the material in the larger lot. In case of a heterogeneous material like coal, it has to be proved scientifically and statistically that the sample drawn is reasonably representative. The fundamental requirement of sampling are:

- All particles of coal in the lot to be sampled are accessible to the sampling equipment and each individual particles shall have an equal probability of being selected and included in the sample.
- The dimension of the sampling device used should be sufficient to allow the largest particle to pass freely into it.
- The first stage of sampling known as primary increments is the collection of an adequate number of coal portions from positions distributed over the entire lot to take care of the variability of the coal. While drawing increments, great care should be taken to avoid the occurrence of bias in the results.
- The primary increments are then combined into a sample, as taken or after reducing the mass of the sample to a manageable size.
- From this gross sample, the required number and types of test samples are prepared by a series of processes jointly known as sample preparation.
- The minimum mass of the gross sample should be sufficient to enable particles to be present in the same proportions as in the lot of coal from which it is taken.
- To ensure that the result obtained has the required precision the following issues are to be considered.
    - Variability of coal

- Number of samples from a lot
- Number of increments comprising each sample
- Mass of sample relative to the nominal top size

Existing practice of sampling of coal for thermal power stations

Thermal power stations are the largest consumers of coal in India. Very often power stations receive coal from multiple sources and for commercial purposes source wise results are required. As per recent agreements some utilities including NTPC have joint sampling arrangements either at loading / unloading end or at both ends. Many other SEBs and coal companies have appointed third party independent agencies for sampling at both ends. As per the agreement, sampling for general analysis and total moisture has to be done at the loading points. In the absence of mechanical sampling system at the loading points, sampling is carried out from the loaded wagons by manual means. If automatic-mechanical sampling system (AMS) exists at the loading/unloading points, sampling is done through AMS. NTPC pit head power stations are equipped with AMS but for almost all other power stations, sampling at loading points is manual.

Indian standards on sampling coal and coke

Detailed documented procedures are laid down in national and international standards for different methods of sampling of coal and coke. The Indian standards for sampling of coal are:

- IS:436 (Part I / Section I) – 1964 – manual sampling
- IS:436 (Part I / Section II) – 1976 – mechanical sampling

IS.436 (Part I / Section I) - 1964: manual sampling

The methods for sampling coal and coke IS 436 (Part I / Sec I) 1964 was originally issued in 1953 as a tentative Indian standard and subsequently in 1964, the revised version (Part I - Section 1) – manual sampling was issued after extensive investigations were carried out on Indian coals. For the purpose of sampling, Indian coals have been divided into the following three size groups namely.

Run-of-mine coal	-	0 to 23 cm
Large coal	-	5 to 15 cm (upper limit not exceeding 23 cms) and
Small coal	-	0 to 5 cm.

This standard prescribes the methods of sampling of coal from a) conveyors, b) wagons, c) ships, d) stockpiles and e) coal seams. Method for reporting of test results has also been given in the standards.

Sampling of coal seam *in situ*

Sampling of coal *in situ* gives a measure of the quality of coal to be mined. The analysis of this sample, however, will seldom give the same results as those of a run-of-mine sample. This is because, obvious dirt bands exceeding 10 cm in thickness are excluded in the seam sample, while they get included in the mined coal. The seam sample is taken in a channel (30 cm width x 10 cm depth) representing the entire cross section of the seam.

Manual sampling from loaded wagons

a) A rake (train load) will be considered as one lot for sampling
b) The lot will be divided into suitable sub-lots (for more than 3000 tonnes there will be 6 sub-lots).
c) A minimum of 25 percent of the wagons shall be selected from each sub-lot at random for drawing samples.
d) From each of the selected wagon, a sample shall be collected by taking the whole section of coal from top to bottom over an area of 30 cms diameter.
e) For doing so, coal from the surface up to a depth of approximately 50 cm shall be collected first. The bottom of the hole formed shall then be covered by a plate and the coal lying on the sides shall be removed up to the plate so that when the hole is dug further the coal from the sides may not fill up the hole by falling down. This procedure is repeated till the bottom is reached.
f) The number of increments to be taken from the selected wagons and the weights of the increments and the gross sample are prescribed. For run-of-mine coal, minimum number of increments is 50, the weight of gross sample is 350 kg. For small coal (up to 5 cm size), minimum number of increments is 15 and weight of gross sample is 75 kg. The increments will be evenly distributed over the selected wagons of the sub-lot. The increments are drawn with the help of a suitable scoop or shovel.
g) The Material collected from the selected wagons in a sub-lot shall constitute a gross sample.

Reduction of gross sample

The gross sample shall be crushed to 5 cm, preferably by mechanical means, mixed thoroughly and quartered. Two opposite quarters shall be retained and the rest rejected. The retained material shall be further mixed together, halved and one-half retained. Thus, ultimately one quarter of the original gross sample is retained and the rest rejected. The material so obtained shall be crushed to 12.5 mm by a jaw crusher and then to 3.35 mm by a palmac type of reduction mill. The crushed material shall be reduced either by coning and quartering or by riffling till 2 kg of sample is obtained.

The sample as reduced shall be finally ground to pass through 212 micron IS Sieve. From the ground material, 1.5 kg shall be taken which shall constitute the laboratory sample. Each laboratory sample shall be divided into three equal parts, one for the purchaser, another for the supplier and the third for the referee. The samples shall be kept in glass or polyethylene containers and shall be sealed and marked properly.

CCOs procedure for manual sampling from loaded wagons

Under the colliery control order, the Coal Controller has prescribed certain procedure (which defers from IS 436) for collection of samples from loaded wagons. The details are as follows.

a) A rake (trainload) will be considered as one lot for sampling.
b) 10% of the wagons of each lot will be selected at random for drawing of samples.
c) From each of the selected wagon, a sample shall be collected from a pit 30 cm diameter and dug up to a depth as far as possible. The minimum quantity collected from each pit shall not be less than 30 kg. The method of collecting samples is the same as explained above.
d) In case of any big piece of coal / stone encountered during the process of digging the pit, all material at the top of the big piece shall be taken in the sample.
e) The samples collected from all the selected wagons shall be mixed and will constitute one gross sample for the lot. There is no change in the number of increments (as above) and the weight of the gross sample

A comparison on the prescribed method of sampling from loaded wagons under IS:436 and CCO are given in Table 4.1

Table 4.1 Comparison between IS: 436 and CCO - sampling from loaded wagon

Sl. No	Items	Under IS 436	Under CCO
1	Lot	1	1
2	Sub-lots	6	Nil
3	No of wagons to be selected at random	25% in each sub-lot i e Total 15 wagons	10% in lot i e 6 wagons
4	No of gross samples from the lot	6 (1 for each sub. Lot)	1 (1 for the lot)
5	Size of sample pit	Dia - 30 cm Depth - up to bottom	Dia - 30 cm Depth - as far as possible

Proposed revisions in IS:436 (Part I / Sec I) – 1964

A revision has been proposed in IS:436 (Part I/Sec I) based on the CCO notification on method of sampling from loaded coal wagons. The revision is proposed on the following aspects. Final decision on the proposed revision is still awaited.

a) For sampling from loaded wagons, division of the lot into several sub-lots to dispensed with.

b) A minimum of 10% wagons are to be selected for drawing increments instead of the existing method of selecting 25% of wagons.

Comments on IS:436 (Part I/Sec I) and CCO notification

a) Manual method of wagon top sampling of large sized coals is not only difficult but also violates some of the fundamental principles of sampling. As per requirement, samples are to be drawn from the full depth of the wagons which is impossible to be collected manually. Furthermore, due to size segregation the samples collected from the wagon top does not satisfy the criteria of representativeness of the whole sample. More importantly, sample collection by a shovel from the top is a function of human discretion and not governed by the probability rule. Wagon sampling when practiced in other parts of the globe is done on smaller and uniform sized coals, generally washed and blended, and preferably by auto-mechanical auger systems.

b) Most of the loading point sites are not equipped with mechanical size reduction units. Manual practice of size reduction of a large quantity of samples on a regular basis is time consuming and involves human errors.

c) Both the revisions as proposed under CCO notification, are not acceptable, because one gross sample cannot be representative of a lot (>3000 tonnes) At many loading points, a rake gets loaded with coal from 3 to 4 different collieries and the quality of coal is thus generally not uniform in the 55 wagons. It is a known fact that sampling from top of a wagon introduces bias. Dispensing with sub-lots and reducing the number of gross sample will only result in lowering the desired level of precision.

d) Method of sampling should take note of the quantum of coal being loaded / despatched at the loading point. Manual sampling from a lot (trainload) within the specified time of 3-5 hours for loading is not feasible.

e) Two different approaches have been recommended to deal with large pieces/stones while taking increments at a selected point in the wagon IS:436 prescribes that 'in case bigger lumps are encountered which are not accommodated in the scoop or shovel, they shall be collected and crushed separately. The corresponding increments shall then be drawn from the crushed material'. CCO prescribed that 'in case of any big piece of coal / stone encountered during the process of digging the pit, all material at the top of the big piece shall be taken in the sample'

f) It can be stated that the best alternative for monitoring quality of coal at loading points is to use automatic mechanical system (AMS) on coals crushed to size up to 5 cm. AMS has several advantages with small coal, it ensures true representative sampling and less handling of material With small coal (up to 5 cm), manual sampling can also provide more representative sample as compared to large size coals.

g) In further relaxation of the prescribed method of sampling, some of the work orders issued to third party agencies state as follows:

- 25% of the wagons to be selected for sampling. From the selected wagons samples shall be collected as follows:
  - Samples shall be collected at one point from the loaded wagon, either at the centre of the wagon or either side
  - Top layer of about 0.15 m depth at the point of sample will be scrapped for an area of 1 m x 1 m and the sample will be collected from there up to a depth of 0.5 meters.
  - In our opinion, such sampling will not give a representative sample.

IS:436 (Part I/ Sec 2) – 1976. mechanical sampling

In view of the increasing use of coal for power generation, and since large quantities of coal were being handled and transported, the Bureau of Indian

Standards recommended the use of mechanical handling and sampling systems on a wide scale. In the 1970s most of the mines under NCDC had CHPs (coal handling plants) for loading wagons. In addition, all the new mines that were planned by NCDC included coal handling plant as an integral part of mine planning. Keeping these factors in view, in 1976 section 2 on mechanical sampling of coal was added to IS:436 Part I. This standard prescribes the methods of sampling and sample preparation using mechanical systems. In view of the possibility of use of various designs of equipment that could be used for the purpose, no specific designs have been recommended in this standard.

Mechanical sampling system

An essential condition of sampling is that the whole bulk of coal to be sampled should be exposed, so that all parts are equally accessible to the sampling implement and have the same chance of being included in the sample. The most favourable situation in which the whole of the coal is exposed for sampling is when it is being conveyed on a belt or similar device so that it passes the sampling point in a stream. If the belt is stopped and a section of adequate length is taken across the whole width of the belt, all the coal particles in this section can be taken so that there will not be any significant bias. Sampling from a stopped belt is therefore the most satisfactory way of ensuring that the sample is free from bias and it is recommended as the reference method.

In many installations it is not possible to stop the belt without considerable interference with the work in the installation and other methods of sampling have therefore to be used. Alternatively, samples from the cross section of a moving stream are collected, to ensure that each increment is a representative of the cross section. It is this principle on which most of the mechanical sampling systems work.

Sampling from transfer point of a moving stream

Coal from the stockyard or unloading station moves on one or two parallel conveyor lines. At the transfer point prior to a special weighing belt, an automatically operated sampler cuts increments from the main flow. This apparatus which collects the increments is called primary sampler and consists generally of automatically operated bucket moving with uniform speed into the falling coal stream at adjustable intervals of time. The primary sample taken from the passing flow is continuously prepared by crushing and dividing in 3 or 4 stages. The final sample is dried and ground to 212-micron size for chemical analysis.

Sampling from moving belt

Machines for sampling from moving belt have a scraper arm which operates by sweeping off increments across the width of a conveyor belt. In this case the mass of the increment depends on the load on the belt and the width of the scraper. The device may be set to operate automatically either at equal intervals of time or, if a belt weighing machine is incorporated, after specified masses of coal have passed.

Sub-lots and increments

Under mechanical sampling, number of sub-lots and number of increments taken from a lot in order to achieve a particular precision is a function of the variability of the quality of the coal in the lot, irrespective of the mass of the lot. The lot may be sampled as a whole, resulting in one sample, or divided into a number of sub-lots resulting in a sample from each. Such division may be necessary in order to achieve the required precision

When the mass of the lot (a trainload) is greater than 3000 tonnes, there will be 6 sub-lots. For each sub-lot there will be a gross sample of a minimum of 350 kg for ROM coal and 80 kg for small coal. The number of increments will be 35 for ROM coal and 8 for small coal.

Experience with automatic mechanical sampler (AMS)

Pit-head power stations of NTPC have been operating AMS for getting correct assessment of the quality parameters of coal. However, it is reported by NTPC that they have been facing practical difficulties during sampling for ROM coal (up to 23 cm size) coal in view of the sticky nature of coal and other factors.

International standard on coal and coke sampling

Over the years, a number of standards have been prepared by various agencies that delineate the procedures for the collection of samples. Some of these are.

1. International organisation for Standards (ISO)
2. American Society for Testing and Materials (ASTM)
3. British Standards Institution (BS)

ISO:13909 (final Draft)

ISO has brought out a final draft on mechanical sampling of hard coal and coke (ISO:13909) in January 2001. This cancels and replaces ISO 9411-1:1994 on solid mineral fuels - Mechanical sampling from moving streams. ISO:13909 consists of the following parts under the general title of hard coal and coke.

Part 1 : General introduction
Part 2 : Coal – Sampling from moving streams
Part 3 : Coal – Sampling from stationary lots
Part 4 : Coal – Preparation of test samples
Part 5 : Coke – Sampling from moving streams
Part 6 : Coke – Preparation of test samples
Part 7 : Methods for determining the precision of sampling, sample preparation and testing
Part 8 : Methods of testing for bias

General principles of sampling

The purpose of taking and preparing a sample of fuel is to provide a test sample which, when analysed, will provide test results representative of the lot sampled. The first stage of sampling, known as primary sampling, is the taking, from positions distributed over the entire lot, of an adequate number of fuel portions known as primary increments. The primary increments are then combined into a sample, either as taken or after having been divided in order to reduce the mass of the sample to a manageable size. From this sample, the required number and types of test samples are prepared by a series of processes jointly known as sample preparation.

Establishing a sampling scheme

The general procedure for establishing a sampling scheme is as follows.

a) Define the quality parameters to be determined and the types of samples required
b) Define the lot
c) Define or assume the precision required
d) Decide whether continuous or intermittent sampling is to be used
e) Determine the method of combining the increments into samples and the method of sample preparation
f) Determine or assume the variability to the coal and the variance of preparation and testing. Methods for determining variability and the variance of preparation and testing.
g) Establish the number of sub-lots and the number of increments per sub-lot required to attain the desired precision
h) Decide whether to use time-basis or mass-basis sampling and define the sampling intervals in minutes for time-basis sampling or in tonnes for mass-basis sampling

i) Ascertain the normal top size of coal for the purpose of determining the minimum mass of sample
Note. The nominal top size may initially be ascertained by consulting the consignment details, or by visual estimation, and may be verified, if necessary, by preliminary test work.

j) Determine the minimum average increment mass

Choice of sampling procedure

Sampling of fuel may be executed using one of the following methods:

a) increments are taken from a stream of fuel falling from the discharge end (belt head) of a conveyor

b) increments are taken from a stream of fuel on a moving belt

c) increments are taken by full-depth sampling of stationary lots (e.g. a wagon)

The stopped-belt sampling procedure described in ISO 13909-8 is the reference method. This is because collecting increments in accordance with this method ensures that no increment extraction bias is introduced. Therefore, this reference method shall be used whenever the sampling system is being tested for bias as described in ISO 13909-8. However, since stopped-belt sampling will inevitably interfere with the operation of the fuel-handling plant concerned, it is not always a practical method for routine sampling.

Methods a) and b) are the preferred routine methods of mechanical sampling. Method b) may offer advantages, for example, where there are space restrictions in the region of the belt head or in order to limit the mass of the primary increment when sampling from high-capacity conveyor belts.

Methods of sampling from stationary lots

Sampling from stationary lots is carried out on a mass-basis only. The method described in this clause are applicable to railway wagons, road wagons, shallow barges and ships up to a size such that full-depth sampling can be achieved. A sub-lot can be one or any number of wagons, an entire barge, several barges or one hold of a barge.

The increments are taken using a mechanical auger or other suitable full-depth mechanical sampler. It is to be ensured that the sampler penetrates the full depth of coal and that a full column of coal is extracted, so that a representative increment is obtained. Large and hard pieces of coal or rock shall not be pushed aside deliberately when an increment is collected.

There are few commercially available, power-operated samplers which are suitable for mechanical sampling of coal. It is essential that any mechanical sampler used is capable of taking full-depth samples. One such sampler is the mechanical auger, which is generally preferred, but is impractical in some circumstances, for example, sampling of fuels of large top size. A mobile coal sampler cum analyser machine widely used in USA and other countries is briefly described in Annexure 4.1. It is an 'all processing machine' i.e. auguring, splitting, crushing and secondary sampling are all done, while it is over the rail wagon. The operator's cabin is fitted with a nuclear analyser to analyse sampled coal on the spot and shows the result on a computer monitor (Ash, Moisture and GCV).

Conclusions

- The prerequisite to proper quality assessment is collection of an unbiased sample and accurate analysis of the sample so collected.
- Manual method of sampling of large coal from wagons is neither practicable in the given situation nor it is accurate and violates some of the fundamental principles of sampling. It was probably valid in sixties when the wagons were small at 22 tonnes and 24 hours loading and sampling time was available.
- Since most of the loading for power stations is through pay loaders, manual sampling is the commonly adopted method of sampling at loading points. As per requirement, samples are to be drawn from the full depth of the wagons, which is impossible to be collected manually.
- The quantum of coal collected in one wagon up to a depth of 1.5 meter and over 30 cm diameter circle, with bulk density of coal being 0.8 tonnes/m^3 would be approximately 85 kg. As per CCO, if samples were collected from six wagons (10% of a full rake), the total weight would be 510 kg. If 15 wagons, (i.e. 25% rake) are to be sampled the quantity will be much larger. It is just not possible to collect such large quantities from so many wagons in the free time allotted by railways for loading.
- Most of the loading points are not equipped with mechanical size reduction units. Manual practice of size reduction of a large quantity of samples is time consuming and involves human errors.
- Further relaxation in the method of sampling as per work order issued to third party agencies has been granted. This will only lead to incorrect assessment of the quality of coal in the rake.

- For quality parameters to be determined at a reasonable precision level there is no substitute to introduction of auto-mechanical samplers at all loading and unloading points. Most of the disputes resulting from manual sampling can be totally eliminated. This essentially requires installation of coal handling plants at the loading points.
- The installation of CHPs has been stressed by Fazal Committee (1983) as well as by the Committee of Secretaries (1991), but very little action has been taken by the coal companies. The installation of CHPs can also be linked to crushing the coal to a size below 50 mm, which will result in sampling of small coal with associated advantages.

Suggestions

- The collieries should declare the seam (in-situ) grade as well as the dispatch grade at the loading points. The 'notified' or 'declared' grade should specifically refer to the grade of the coal loaded into wagons.
- It is reported by NTPC that they face a number of problems with AMS. With crushing of coal to smaller size, it can be expected that many of these problems can be resolved.
- Till the planned construction of CHP at all loading points is undertaken in a phased manner, the only alternative available is to introduce the system of joint sampling at the unloading end where belt conveying systems are available. (which was the practice between 1986 to 1992) In such situation, collection of a more representative sample is feasible. Additionally, this may force the coal companies to seriously start implementing the planned construction of CHPs.
- It is reported that mechanical auger for sampling from loaded wagons work satisfactorily with small coal and may not be effective with run-of-mine coal. Thus, there is a need to bring down the size of coal supplied from the present 200-250 mm to 50 mm. However, a demonstration of this equipment would be necessary before they can be adopted for large-scale application.
- It is also recommended that coal companies should install on-line ash analysers at the loading points, wherever CHP are in operation. It is reported that on-line ash analysers are already operating in CCL washeries at Kathara and Swang and at Kusmunda colliery. This will help the colliery management to monitor regularly the quality of coal being loaded/ dispatched to the consumer. Online analysers also work better if the coal is of smaller size.

Finally, it can be stated that adhering to a system (manual sampling) which is intrinsically biased will not lead to any solution to the quality problem. Alternatives are known and established. In the existing liberalized environment, it will be wise to adopt them as early as possible. Otherwise, the domestic coal industry, in all probability, will gradually lose its market to imported coal or alternate fuels.

5 Coal supply agreements

Introduction

As detailed in the chapter on quality, history of coal supply agreement (CSA) between coal sector and bulk consumers of coal (utilities) has been highly chequered. In the pre-nationalisation days, the coal supplies to power utilities were based on mutual consent and governed by the Coal Controller and Coal Board. After nationalisation of the coalmines, contracts were in the form of exchange of letters and were simple in nature because the problems of quality and methods of payments were not so acute.

With the passage of time, quality of coal supplied to consumers and related payments for coal supply became major issues. The first draft agreement was formulated in 1977 with the intervention of Minister of Energy, GOI. This draft was never signed by the parties. In 1984, another model draft was prepared and this time most of the power boards signed this agreement with CIL by March 1985. However, this agreement was meant to be a long-term contract but the parties agreed for only one year to start with. The agreements were not renewed after one year and these lapsed primarily due to differences on the site of joint sampling. During the intervening period, in absence of any agreement, unilateral decisions by both suppliers and consumers continued to be taken resulting in more disputes and the coal bill dues continued to mount.

A large number of meetings have been held at the highest levels of the government to sort out the differences between the utilities and suppliers on coal supplies and related issues. The major contentious issues are.

- Quality / quantity of coal supplied
    - The location for the determination of such quality
    - Other modalities as method of sampling, infrastructure for sampling and analysis etc. and manpower requirement
    - Dispute resolution in case of variance in quality
    - Size of coal and presence of extraneous materials in it
    - Weighment of coal supplied
- Payments of coal bills

  The following factors have contributed to the accumulation of outstanding against coal bills

- Inconsistencies in the quantity and quality of coal supplies between the loading and unloading points
- raising of bills by suppliers on the basis of declared grades (seam grade)
- arbitrary deductions in coal bills by public sector utilities
- Inordinate delay in the settlement of bills/ claims by both the parties (coal company vis-à-vis public sector utilities)

The issues listed above are the major items to be covered in any agreement and non-resolution of these issues have resulted in no agreement between the buyer and seller. In addition, other reasons for failure to reach an agreement are.

- Mutual distrust of the coal and power industry on sampling and analysis
- Failure to mechanise coal loading through CHP
- Failure to mechanise sampling procedure
- Role of MOC in the standing linkage committee
- Monopolistic nature of coal industry
- Presence of IR as the monopolistic transporter which refuses to be a party to such contracts
- Paucity of funds with the State Electricity Boards

Developments in coal supply agreements

In the year 1998, after discussion with CIL and State Electricity Boards, CPU drafted a new agreement, which was circulated to all the utilities as the model agreement document. While many of the SEBs have entered in to agreement with CIL with some modifications of the draft, some others are still negotiating. NTPC, the largest power utility operator has drafted its own version of the agreement after discussion with the coal companies.

Model draft agreement between utilities and coal companies

The salient features of the model agreement to be executed between coal seller and coal consuming power station for supply of coal are given below.

General

- Coal passing through screen with 200-250 mm apertures with no over size is defined as slack coal
- Coal retained on such screen are termed as lumpy coal
- Reference lab defined as government/ public sector labs

- Point at which property/ risk in coal is transferred to purchaser defined

Period of agreement

- Left open, to be decided by the parties
- *To be reviewed jointly if grading structure of the coal changes or in any event* beyond the control of seller/buyer

Termination of contract

- Breach of undertaking with 90 days notice by either
- In case of force majeure
- Negotiation within 3 months if purchaser complains of difficulty in using the quality of coal being supplied

Quantity

- As provided by SLC, ± 10% variation in coal quantity subject to allotment and placement of wagons by IR
- Coal to be used only for the purpose of electricity generation

Quality

- The quality of coal shall fall within the parameters as indicated in Schedule
- All efforts to be made to contain size within 200-250 mm.
- Stones above 20 mm to be segregated at unloading point and seller informed within 10 days.
- The equivalent coal cost of the same including freight, royalty and taxes to be reimbursed by seller on periodical joint assessment.
- If quality falls below that specified in Schedule, seller will be informed
- If quality doesn't improve in 10 consecutive rakes, supplies to stop from the source, and alternative source to be found.
- Right of refusal to accept coal if no improvement within 15 days.

Weight of coal

- Coal to be weighed invariably by electronic weighbridge with printouts provided by railways/seller.
- Right to witness weighment by the purchaser

Procedure for weighment

- Printouts to be accepted by both parties if weighment is done on electronic weighbridges.

- If electronic weighbridge is not available at loading end, 100% weighment at unloading end on electronic / mechanical weighbridge.
- If unloading end doesn't have facility for 100% weighment, and if mechanical weighbridges are available at the loading point, the weight recorded at the loading point shall be accepted as final.
- Where weighing facility is not available at any end, the existing system of accepting weighment on volumetric measurements will be followed.

Method of booking

- To be booked as per instructions of purchaser
- Idle freight resulting in under-loading to be paid by seller

Sampling of coal and analysis

- Sampling and quality analysis of coal for rail fed power stations will be carried out at both the ends by one independent third party agency. The sampling shall be done as per provisions of the relevant Bureau of Indian Standard on rake to rake basis.
- The payment of charges for the sampling and testing done at the loading end would be met by coal companies and for those done at power station end by the utilities.
- The UHV arrived at (on-rake-to-rake basis) for loading point samples and unloading point samples will be averaged to arrive at the final grade/UHV for the purpose of payment. In case the difference is more than 5 percent, and also the variation changes the grade arrived at for the purpose of payment, then both the referee samples will be analysed and results obtained will be treated as final for the sake of payment of that rake.
- All the referee samples will be tested only in the Government Laboratory or government-owned laboratory or the Public Sector Laboratory, which are mutually agreed to by the concerned parties.
- The diverted rakes received at the power station would also be sampled and analysed by the third party stationed at that power station for determining the grade for payment there of.

Price of coal

The price of coal shall be as per the notification issued by the Government of India or by CIL/Seller under the powers delegated to them from time to time.

Billing and payment

- Bills shall be prepared on rake –to-rake basis for rail movement
- The buyer shall deliver to the seller an irrevocable revolving letter of credit (IRLC) issued by a bank. The IRLC shall be maintained throughout the term of the agreement. The payment would be made through IRLC or otherwise for the price equivalent to 10 days supplies on linked quantity by the Standing Linkage Committee.
- Idle freight due to under loading will be paid by the seller.
- Coal bills not involving referee samples are to be settled within 4 weeks and in other cases 4 weeks from the date of receipt of referee sample results.

Arbitration

All disputes shall be resolved by mutual consultations. If it is not possible they shall be referred to arbitration.

Comments on the model draft agreement

1. There is no definite commitment on coal supplies from identified sources and on the quantity linked by SLC. As per the agreement, the quantity of coal supply will be subject to allotment and placement of wagons by railways.
2. In today's situation of the industry, no contract between a power utility and a coal supplying company can be called a legally enforceable contract. It is because of the involvement of third party such as the IR, which is a monopoly. Most of the utilities have no option but to buy coal from the national coal industry and the entire rail fed power stations essentially need to use IR for transportation of their coal. The rules of the railways are obviously made for the advantage of IR (being coded by the British) and are quite inflexible.
3. The linkage committee is headed by a senior officer of the MOC and IR is represented by another senior officer of the railway board. Obviously, the utilities get their allotment of coal from a source, which suits the interest of the coal industry and that of the operational plan and convenience of IR. The power utilities can't do much about it, more so if the utility is run by a private agency.
4. The situation gets more aggravated because the state electricity boards are generally not cash rich and therefore generally don't pay the coal bills in time and in full. In this situation, they can't afford to crib if the coal by the linkage committee is allotted from an inferior source or from a distant source where

they will be losing on the freight. This helplessness is clearly apparent in the draft agreement and many of the agreements, which have been recently signed. Consequently, these FSAs can at best be called best effort agreements.

Coal supply agreement between power utility and coal company

The CSA of HPGCL (Haryana Power Generation Corporation Limited) and that of PSEB (Punjab State Electricity Board) have been examined and the additions/variations from the CPU models are as follows.

- The period of contract has been fixed at 3 years
- Penal freight due to overloading to be shared at 50:50 basis till final judgement of SC, to be applied retrospectively
- Oversize stone defined as 200mm-250mm, while the CPU suggests a size of 20mm for stones

The CSA of CESC with ECL has been examined and the comments are as follows.

- The period of contract has been fixed at 3 years
- Purchaser will install electronic WB within one year at unloading end
- Penal freight due to overloading to be shared at 50:50 basis till final judgement of SC, to be applied retrospectively
- Sales tax will be paid on analyzed grade
- Interest free deposit for one weeks supplies (10 days in case of SEBs)
- Oversize stone defined as 200mm-250mm, while the CPU suggests a size of 20mm for stones
- Clause on supply of below grade G coal missing

However, since the schedules were to be drawn by each plant with the seller, there are larger variations in these. Also there are discrepancies between the agreement and the schedules.

Coal supply agreement between NTPC and coal companies

NTPC has entered into a coal supply agreement with coal companies in 1999. The agreement is for a period of 10 years extendible to 12 years. The highlights are that the source of supply has to be mutually decided. Alternate source also is defined in the schedule. NTPC has kept the right to purchase coal from other vendors. The salient features of CSA with ECL are as follows.

Quantity

The quantity of coal to be supplied is also defined under the concept of Annual Contracted Quantity (ACQ); Monthly Scheduled Quantity (SQ); Monthly Quantity Variation (VQ), Monthly Required Quantity (RQ) and converting supplied tonnage into Standard Tonne based on GCV. The bonus and penalty for success and failure to supply the contracted quantity has been built in the contract. Proper system of weighment has been evolved and incorporated. Quality of coal to be supplied has been fixed with very tight parameters. Immediate action for curbing oversize, extraneous materials has been spelled out clearly.

Quality and sampling

Both the parties have agreed to joint sampling at one end only. Auto-mechanical Samplers (AMS) are to be used for sampling from the running stream during loading and unloading of the wagons. Collection of separate samples for determination of moisture has been provided. Compensation for excess moisture by the seller to the purchaser has been built in to the agreement. Determination of sulphur has been made mandatory. The period of re-declaration of grade if the quality slips consistently has been reduced from six months (CPU Model) to three months.

Coal prices

All items that constitute coal price have been detailed. The prices escalation formula based on the fixed and variable costs of coal production, net block of the linked mine and other financial parameters has been mutually agreed and incorporated in the contract. The purchaser has kept his right to get coal at a lower price than contracted if the coal is offered by the seller from the same source to some other purchaser at the a lower price.

Payments

The system of advance payment is equivalent to 15 days supplies and credit for the next 15 days. Other items like bonus, penalty etc. has also been integrated in the billing in a time bound program.

Dispute resolutions

The disputes arising during the period of this contract has to be sorted out based on office memorandum issued by of department of Public Enterprise. Arbitration Act 1940 will not apply in this case. The Arbitration and Conciliation

Act 1996 will come into play only if the above office memorandum is invalidated due to any reason.

Comments on CSA of NTPC

- All pithead power plants of NTPC have its own captive transport system and don't have to bow down to the whims and fancies of IR. This is why NTPC could sign a contract, so different from all others, with various coal producing companies under CIL. The contract of a couple of rail fed stations of NTPC is still to be signed because the IR is involved in them.
- The NTPC contract is the first legally enforceable long-term (10 years extendable to 12 years) contract primarily because the involvement of third parties like the Coal Controller, SLC or the IR has been eliminated.
- Mandatory use of Auto Mechanical Samplers (AMS) for sampling during loading and unloading of the wagons from the running stream is a step in the right direction. This has been possible because most of the collieries supplying coal to NTPC have proper CHPs /Silos. Collection of separate samples for determination of moisture has been provided. Compensation for excess moisture by the seller to the purchaser has been built which will curb addition of excess water, which it is alleged, is being regularly added by the seller.
- The price escalation formula built in the contract will prevent arbitrary increase in the price of coal by the seller and the utility will know what is going to be the increase in future.
- The system of advance /credit for the 15 days is an equitable method devised by NTPC and agreed by CIL. Other items like bonus, penalty etc. has also been integrated in the billing in a time bound program to avoid disputes
- Many of the schedules, which were to be drawn mutually within a month and were to form essential part of the signed CSA have not materialized. Since there were differences in finalization of modalities for collection, handling, storage and preparation of joint samples (Schedule IV), the job of deciding for the same was contracted out to CFRI, which has not submitted its report yet. Procedure on segregation and separate stacking of stones of +200 mm etc. (Schedule VII), detailed method for quantifying /determining deemed delivery quantity (DDQ) and deemed off-take quantity (DOQ) (Schedule VIII) are yet to be drawn. In this respect, this contract remains unexecuted and the old practice is being followed for the time being, pending finalization.

- It is understood that NTPC has filed the contract for registration with MRTP but has not heard anything from them yet. In addition, an application filed for exemption under Colliery Control Order 2000 is pending with the MOC.
- It may be mentioned here that the recent increase w.e.f. 01.02.2001 in price of coal by CIL was contested by NTPC on the ground that the price increase for NTPC has to follow the method outlined in the contract. It was found out that the increase is exactly to the extent as given in the contract. Thus, NTPC contract can be rightly called as the trendsetter of the coal power relationship.

International contracts (imports)

One sample model agreement was examined and salient points are listed. In any such contract, since shipping is involved, there usually are large number of sections dealing with the responsibility of seller and buyer towards facilitating the placement and loading of the ships.

- Base Price is indicated with related NCV (net calorific value) which is adjustable up or down by using the actual NCV (aNCV) as determined by the lab. Invoice is prepared on the base price and is modified by the calculated final price, if aNCV is available before the date of delivery. The payment terms are either IRLC or credit for a defined period.
- Quality of coal is fully defined along with rejection limits on ash, moisture, VM and sulphur. The coal will be sampled and analyzed in accordance with ISO standards, at the loading port by an independent certified laboratory at seller's cost. Assessment of quality will be done a second time at the point of delivery, again at seller's expense. Each time separate sample will be collected and analyzed for moisture determination. Samples will be split in to three parts for buyer, seller and referee. If the difference between the analysis results of samples of buyer and seller is within 100 kcal/kg, and do not fall out of the rejection limit, average of the two results to 2 decimal points will be taken as final and referee samples will not be analyzed. If the result show a variation of more than 100 kcal/kg or have fallen out of the rejection limit, another well known lab will be appointed with mutual consent and referee sample analyzed. Cost of this will be borne by the party whose variation is more. The result of this analysis will be binding on both.
- Weight of the shipment will be determined by draught survey at Delivery point by a marine surveyor appointed by the seller at his own cost.
- By giving a notice within two days of the receipt of results, shipment falling outside the rejection limits may be rejected by the purchaser. In case of such

rejection, the cost of disposal will be borne by the seller. If agreed, the price for such consignment may be negotiated for a fair and reasonable deal.

- Seller's deficiency (SD) has been defined as his failure to deliver all or part of the coal as per the agreed quality parameters. Similarly, the Buyer's deficiency (BD) has been defined as his failure to accept all or part of the consignment of correct quality. Replacement Price (RP) means the price at which buyer purchases substitute coal of similar quality and quantity as SD or at the prevailing market price. The penalty for default is as follows:
- If seller fails to deliver all or part of the quantity, seller shall pay an amount equal to the positive difference between the price of buyer would have paid for SD and RP. Similarly, if the buyer fails to accept all or part of the delivery, buyer shall pay the positive difference between sale price and the price seller would have been paid for BD. Sales price will be based on actual NCV or base price, whichever is available at the time.
- Finally, there are various clauses indemnifying each other on many counts.

Conclusions

- Though attempts have been made in past for a viable FSA between coal and power sector, these have failed mainly due to the lack of mutual trust between the coal and power sector.
- Disputes have arisen mainly due to supply of inferior grades of coal and short-supplies but billed for higher grades. Ingress of extraneous material and lumpy coals has added to the problem.
- Recent efforts by CPU has resulted in signing of some FSAs in-spite of several lacunae in the draft agreement.
- Helplessness of power sector is visible in these contracts as IR remains as the main transporter and SLC continues to be operative.
- Large power utilities like NTPC did not adopt the CPU's draft agreement and have formulated its own FSA.
- NTPC FSA is the only long-term legally enforceable contract between power sector and coal sector. However, there are problems in this too and some of the operating schedules are still to be finalized between the two.
- Internationally, contracts are legally enforceable but the CPU model is not so and can at best be called 'best effort' agreements.

Suggestions

- The ministries involved have to address various issues together in an unbiased manner and work towards a workable and legally enforceable contract between these sectors.
- The contract should draw good points from NTPC and some international contracts.
- CIL must ensure quality of supplies within a smaller range of heat value of 100 kcal/kg and size of 50 mm
- Sampling arrangements must be mechanized to eliminate human interventions for which necessary infrastructure must be created at both ends.
- Electronic weighment arrangements at both ends are essential and should be completed within a time bound program.
- IR must accept its responsibility to carry coal on 'railway risk' at reasonable cost for which there has to be agreements between IR and utilities.
- Both these contracts must have bonus and penalty clauses built into it, level of penalty being high so as to act as a deterrent but should be reasonable enough to be accepted by both parties
- Sectors should come out of the controlled regime of linkages and decide for the sources of supply mutually

Annexure 1.1

Installed capacity of utilities by region and state (MW): 1 January, 1999

State/union territory/ central sector	Hydro	Steam	Diesel and wind	Gas	Nuclear
Northern region					
Haryana	883 9	892 5	3 9	0	0
Himachal Pradesh	299 4	0	0.1	0	0
Jammu and Kashmir	184 1	0	6 8	175 0	0
Punjab	1798 9	2130 0	0	0 0	0
Rajasthan	971 1	1225 0	0	38 5	0
Uttar Pradesh	1507 8	4664 0	0	0	0
Chandigarh	0	0	2 0	0	0
Delhi	0	371 6	0	282.0	0
Central sector	2010 0	5190 0	0	1882 0	895.0
Sub-total	**7655 1**	**14473 1**	**12 8**	**2377 5**	**895.0**
Western region					
Gujarat	547 0	4674 0	184 4	1634 0	0
Madhya Pradesh	846 1	3017.5	12.3	0	0
Mahrashtra	1801.2	7655 0	5 6	1092 0	0
Goa	0 1	0	0 1	0	0
Dadra and nagar haveli	0	0	0	0	0
Daman and Diu	0	0	0	0	0
Central sector	0	3360.0	0	1292 0	860.0
Sub-total	3194 4	18706 5	202 4	4018 0	860.0
Southern region					
Andhra Pradesh	**2656 9**	**2952 5**	**55.8**	**542 0**	**0**
Karnataka	2555.6	1050.0	146.9	130 0	0
Kerala	1699 5	0	102.0	0	0
Tamil Nadu	1955 7	2970 0	807.3	130 0	0
Lakshadweep	0	0	6.92	0	0
Pondicherry	0	0	0	22 9	0
Central sector	0	4170 0	0	115 3	470.0
Sub-total	8867 7	11142 5	1112 0	940 6	470 0
Eastern region					
Bihar	174 9	1813 5	0	0	0
Orissa	1271 9	420 0	1 1	0	0
West Bengal	141 5	3626 4	22 5	100 0	0
Andaman and Nicobar Islands	0	0	28.3	0	0
Sikkim	32 9	0	2 7	0	0
Central sector	144.0	6547 5	0	90.0	0
Sub-total	**1765 2**	**12407 4**	**26 3**	**190.0**	**0**
North-eastern region					
Assam	2 0	330.0	20 7	269.0	0
Manipur	2 6	0	9.4	0	0

State/union territory/ central sector	Hydro	Steam	Diesel and wind	Gas	Nuclear
Meghalaya	186 7	0	2.1	0	0
Nagaland	3 5	0	2 0	0	0
Tripura	16 0	0	4 9	64 5	0
Arunachal Pradesh	29 6	0	15.9	0	0
Mizoram	5 3	0	20.4	0	0
Central sector	355 0	0	0	375.0	0
All -India	22083 1	57059 5	1464 0	8234 6	2225 0

Source 1999, Annual Report 1998/99, New Delhi Central Electricity Authority, Ministry of Power

Annexure 2.1

Distance between power station and source of supplies

Station	Source	Distance (km)
Northern region		
Panki	BCCL/CCL	780
Harduaganj	BCCL/CCL	1080
Badarpur	BCCL/CCL	1220
IP&Rajghat	BCCL/CCL	1210
Dadri	CCL	1160
Faridabad	CCL	1250
Panipat	CCL	1320
Bhatinda	BCCL/CCL	1505
Ropar	BCCL/CCL	1505
Western region		
Bhusawal	SECL (KK)	880
	MCL (IB)	1007
	WCL	460
Khaperkheda	SECL (KK)	535
	MCL (IB)	650
	WCL	75
Nasik	SECL (KK)	1138
	MCL (IB)	1265
	WCL	710
Koradi	SECL (KK)	535
	MCL (IB)	650
	WCL	Road/Belt
Sabarmati	SECL (KR)	1250
Gandhinagar	SECL (KR)	1288
Sikka	SECL (KR)	1610
Ukai	SECL (KR)	1180
	SECL (KK)	1103
	WCL	780
Wanakbori	SECL (KR)	1066
	SECL (KK)	1453
	NCL	1160

Source 1999, Annual Report 1998/99, New Delhi. Central Electricity Authority, Ministry of Power

(Kr). here, stands for Korea-Rewa (KK) here, stands for Korba-Kusmunda

Annexure 2.2

Railway Fare and Freight Committee Report
Ministry of Railways

(The committee was constituted with reference to the resolution vide ERB-1/91/23/25 date 24.10.1991 under the chairmanship of D M Nanjundappa, other members being A V Poulose, M S Bhandari and S K Nanda. Committee report was submitted on 31st December 1993)

Volume One, Chapter-4

Wagon Utilisation

4.3.2 Wagon kms. per wagon day is an index of mobility of wagons. On B.G., it recorded a drop for three successive years after 1977-78 and then showed a steady improvement till 1988-89. Again after a decline in two successive years 1989-90 and 1990-91, the level of 1988-89 was restored in 1991-92. A wagon (B.G.) produces 113 kms per day. At an average speed of about 23 kms per hour on diesel and electric transaction, a wagon remains on the move for less than 5 hours in a day of 24 hours or for 21 percent of the total wagon time, spending the remaining 19 hours or 79 percent of its time either in terminals or in yards or in maintenance shops/depots. On M.G., the improving trend is seen throughout, but a wagon spends less than 4 hours on the move, which is worse than that on the broad gauge. This cannot be considered an optimum use of a wagon. However, on both gauges, with 1976-77 as a base, the wagon mobility has gone up by about 40 percent on BG and 22 percent on MG, which is certainly an improvement over the past.

Average Speed of Goods Train

4.4.1 The data are given in Annexure 4B. Improved performance reflected in the three indices of wagon utilisation discussed above is not seen in the figures of average speed of goods train. On BG, speed of diesel goods trains is marginally better. Overall speed of all tractions taken together is somewhat better due to replacement of steam traction by diesel and electric tractions. But the average speed still remaining at just 22-23

Kms. Per hour (on BG), against maximum permissible running speed of 75 Kms. per hour, should make every railway manager sit up to ponder. If it is the result of over-straining and over-flogging the line capacity of trunk routes, the system may soon go out of gear and the slowing down of trains may, in fact, reduce the overall capacity. To our mind, this should receive the highest priority in any scheme of rationalisation of train operations.

4.5.2 If we look at the overall average speeds of Mail and Express trains as well as passenger trains, it is noted that the position on B G. is the same today as in 1976-77 (despite introduction of superfast trains and modern tractions), and on M.G., there is a drop of 2 to 3 percent. Thus, in the matter of speeds, both for goods and passengers, the picture is rather gloomy

4.6.2 During the period under review, Diesel engine kms. per engine day in use on goods services have gone up by 15 percent on B.G. and 14 percent on M.G. On passenger services, there is drop in the index during the last 2 to 3 years, mainly due to steam hauled inferior passenger services being gradually taken over by diesel. The utilisation of electric locos has shown a downward trend on goods as well as passenger services on both gauges.

Table 10.15

Wagon Turn-round compared with Lead

Year	Wagon Turn-Round in days (B G)	Average lead of loaded revenue traffic km (all gauges)
1950-51	11 00	513
1960-61	11 20	603
1970-71	13 30	659
1980-81	15 20	754
1985-86	12 00	760
1990-91	11 49	741
1991-92	11 10	740

Unhealthy Practices

4.14.1 Before closing this review, we are constrained to observe that IR have adopted some un-healthy operational practices. These are diversion of wagons (full trains) for operational convenience resulting in non-delivery to the rightful consignee and delivery to a third party, forcing overloading of wagons against safety regulations for getting higher tonnage, indiscreet issue of rationalisation orders to earn more tonne kms. by charging via longer route without even carrying it by that route, splitting a through consignment by rebooking at dumps and yards to show higher tonnage, and non-weighment of wagons to improve wagon turn round. There is an element of arbitrariness and irrationality in these practices. Some of these practices are anti-customer, which have created all round confusion which the Commercial department have to sort out later. We would be referring to these practices at appropriate places in the subsequent chapters. These have been mentioned.

Chapter – 5
Review of Tariff Changes

General Overall Approach of RTEC

5.2.1

(f) 80 percent of the total goods traffic on railways is bulk traffic and 91 per cent of passenger traffic is in 2nd class. Keeping these factors in view, the effect of increase in fares and freight will have to be borne primarily by this sector because the size of resources required by the railways cannot be generated merely by increasing the fares of higher class travel or by increasing the freight of high rated commodities.

Chapter – 6
Traffic Projections

Need for Long Term Projections

Special Features

6.2.1 Several special features of demand for transportation call for circumspection in assessing the future requirements and evaluating past performance. The first and foremost consideration that should not be lost sight of is that demand for transportation "is a derived demand, for it is a means of serving other objectives and does not exist in isolation or for its own sake".[1] Demand for freight traffic is directly connected with the level of economic development and that for passenger traffic with economic activity plus population levels and land use patterns amongst other factors. Economic objectives, and non-economic objectives like say political compulsion which quite often become incompatible with economic objectives, influence demand for transport and investments in the transport sector. In the past railways have been at once the cause and the victim of tardy developments in other sectors.

Chapter – 8
Our Approach to Railway Tariffs

Non-Rate Matters

8.16.2 The availability of wagons is not made known in time; more than one rake will be shunted into the sidings at one time and at any part of the day, even in the midnight or early hours of the morning with the usual free time conditions. Invariable delays in loading occurs as at the dead of the night, it is impossible to mobilise labour for loading. Consequently the user has to pay demurrage. Sick wagons are provided and this causes problems for both the user and the supplier. The users are made to invest very large amounts for developing their own sidings. The IR have withdrawn the scheme of partial financing of such investment. Even when such financial burden is borne by the siding owner, the railways charge for the services of the booking clerk and for the maintenance of siding. Demands are raised towards the salary of the staff even though they are not present in the siding to discharge their functions. When complaints are made about this, the railways, instead of looking at the problem dispassionately to find an amicable solution, resort to the withdrawal of their staff and ask the siding owner to find his own staff for maintenance. How can the siding owner find skilled persons for this work? When the railways have not only a large number of surplus workers, but also possess the skills, it is somewhat surprising that a negative attitude is adopted. Then comes the issue of overloading. The railways maintain their stand that they are carriers only of freight and, therefore, they are not concerned with who is responsible for overloading. The consignee feels that he has no hand in loading, or short delivery, and, hence why should he pay the penalty in cases of overloading and lose in cases of underloading. At the major loading points the consignors are mostly the major public undertakings, like Coal India and SAIL. Not withstanding this, overloading has been a growing phenomenon. Missing wagons are not traced for years. There is diversion of coal wagons under the prerogative exercised by IR and are diverted for either their own use or for others but the payment is delayed for several years. Claims are not settled quickly and instances of non-settling of claims even after a lapse of 2-3 years were brought to our notice. In the case of loading of rakes, because more than one rake is supplied simultaneously, the loading within the free time becomes very difficult. Under such situations, when one or two wagons are left unloaded, there is no sympathetic consideration by the railways. In several cases, users complain that different size wagons are included in a rake which creates problems for loading upto capacity. The IR do not carry the goods at their risk and this leads to heavy pilferage and also for irresponsibility in the matter of safe delivery of goods. IR receipts (RR) pose yet another problem. The rake/goods will have reached their destination but for want of RR, delivery is delayed.

Classification

8.17.2 The Railway Board have very often resorted to changing the classification of a commodity to earn higher revenues and avoid taking a proposal to increase the price through the budget when presented to the Parliament. The freedom to change the classification should not be misused for earning more revenues. This apart, if classification of any one commodity is changed to the advantage of the IR or to the disadvantage of the users, the entire relativity built-up in a given structure of freight rates will be distorted. So is the case when adhoc reductions are announced in the Parliament, when the railway budget proposals go before them. Much of the dissatisfaction with the users is attributed to sudden and arbitrary changes in the classification without even giving adequate notice for their application. The Committee intend to reduce the number of classifications in order to make application of the rates simple and more equitable. At present there are 60 classifications. Reducing them to about 20 on the basis of common characteristics for avoiding unnecessary complications should form an essential part of the package of our proposals.

Productivity

8.18.5 The Steering Committee's Report on Perspective Planning for Transport Development observed: "Staff-wise the IR productivity is the lowest in the world. It is barely one fourth of the railways in the developed countries like USA and Canada. Even if the IR succeeded in achieving the goal set in its Corporate Plan 1985-2000 (increase of 0.3 per cent per annum during the next 15 years or aggregate increase of 4.5 per cent) the expected staff productivity would improve from 0.92 to only 1 17 train km. per manday which will still be much lower as compared to many other countries. The main point at issue here is that the technological modernisation of IR and staff conservation, let alone a marginal increase therein as envisaged in the Corporate Plan are two incompatible goals.[14]

Table 8.2

Staff Productivity (Train Kms. per manday)

Sl No 1	Country 2	1982 3	1991 4
1	China	1 20	1 40
2	Japan	4 50	11 00
3.	Korea National	4 60	6 64
4.	Pakistan	1 10	NA
5	Canadian Pacific Railway	3 40	5 89
6	U.S.A	4 40	NA
7	India	0.92*	1 07*
8	Taiwan	5 30	6 74

* Staff in production units excluded for India only.

Source International Railway Statistics by UTC 1982 & 1990-91

Chapter – 10

Maximisation of Traffic

Operating and Marketing Strategy

10.19.6 Coal: At present, coal is the main stay or the backbone of IR's business. In 1991-92, it accounted for 36.5 per cent of net tonne kms. and 39 per cent of freight earnings. Coal traffic is steadily going up, despite heavy doses of freight increases in the last decade. However, the factors which may affect the future demand for transportation of coal by rail are

a) construction of pipelines for transporting coal in the form of slurry,

b) imports of coking and non-coking coal with opening of new industries around ports,

c) construction of thermal power plants near the collieries and distribution of electricity to distant places, and the Power Houses making their own "Merry-go-round" systems of rail transport, as has been done by NTPC.

d) Because of very poor quality of coal produced in India and its high cost of transportation, gradual shift to other sources of power, like, oil and solar. Government is making vigorous efforts to develop solar energy in a big way.

e) Mismatching of locations of new collieries and the rail capacity.

f) Rapid development of other modes of transport, namely coastal shipping and highways.

Despite these adverse factors, Railways will continue to be the main transporter of coal in this country for a long time to come, provided IR follow a positive and business like approach towards their customers and charges rates which the traffic can bear.

Cement:_ The production of cement has considerably gone up during the past few years. In 1970-71, the railway's share of cement despatches was 76.5 per cent. It is now less than 60 per cent. The diversion of this traffic to road has been mainly due to reluctance of the railways to meet the demand of the industry for less than a train load, inadequate supply of wagons to clusters of factories located in limestone belt, and unrealistic rules of the railways in regard to free time for loading, siding charges, claims, etc. Guaranteed supply of wagons and better customer relations are needed to retain and develop this traffic.

Empty Haulage

10.22.1 Of the total wagon kms. now operated by IR, about 65 per cent is loaded and 35 per cent is empty. Figures of loaded empty ratio during the cardinal years of the past are given in Table 10.14.

Table - 10.14

Ratio of Empty Wagon kms. to Total Wagon kms.

Year	Empty	Loaded	Total
1950-51	23.30	76 70	100
1960-61	29.40	70 60	100
1970-71	28.30	71 70	100
1980-81	30 50	69 50	100
1985-86	31 70	68 30	100
1990-91	34 50	65 50	100
1991-92	34 40	65 60	100

Table 10.15

Wagon Turn-round compared with Lead

Year	Wagon Turn-round in days (E.G)	Average lead of loaded revenue traffic km (all gauges)
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1970-71	13 30	659
1980-81	15 20	754
1985-86	12 00	760
1990-91	11 49	741
1991-92	11 10	740

10.22.2 Be that as it may, here is a challenge to the marketing and operating wings of the railway management. If even 3 per cent of empty haulage can be converted into loaded, railways can earn a net revenue of about Rs. 400 crores per annum. The task may be difficult, but is achievable. The following steps may be taken to convert non-paying empty haulage into freight-

Loss and Damage Claims

10.23.4 Representatives of trade and industry have particularly complained of heavy shortages in coal consignments. Railways avoid reweighment of coal wagons on the ground that those are booked at owner's risk. Hence most of the incidents of thefts of coal do not figure in railway statistics. But the problem, which appears to the quite widespread, cannot be overlooked or side tracked. It must be tackled firmly

10.23.8 We recognise the importance which businessmen attach to the prompt, assured and satisfactory settlement of their loss and damage claims against the Railways as carriers, and the long term impact it has on the growth of traffic and the goodwill of the organisation. The consignors are willing to pay extra charge to the carriers of goods if they are assured of getting damages in time, in the event of any loss of goods in transit. Obvious action for giving this assurance is to get the goods insured with any Insurance Company. But in themselves they ? are in a better position to discharge this function more efficiently and economically than any outside Insurance Company. The premium which any Insurance Company will charge will contain an element of profit in addition to the total amount of compensation paid to the customers and the expenses on the establishment. The facts are best known to the Railways, who cannot escape their responsibility of making enquiries and verification required before settlement of claims even if it was to be done by an Insurance Company. We, therefore, feel that it would be much better if the Railways assume the responsibility of an insurer, include the premium in the freight rate, amend the legal provisions governing the liability of Railways as carriers, and restructure their existing claims settlement machinery to act in a more business like manner. We are throwing up these proposals for further examination and serious consideration of the Government, as we are convinced that the existing system of settlement of loss and damage claims is much below the expectations of the market, and would, remain a stumbling block in the growth of the traffic and earnings.

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PART II

CHAPTER 21
FREIGHT STRUCTURE

Punitive Charge for Overloading

21.8.6 The commodities which often get overloaded are coal, ores, stones, salt and timber. Points of loading of such commodities are well-known. Company Railways had provided wagon weigh-bridges at these points or in close-by yard where the wagons were weighed and railway receipts issued. Most of these mechanical weigh-bridges have gone out of order. Though in the case of collieries, railways have asked Coal India to provide electronic weigh-bridges in the collieries at their cost, they have not attached the importance due to weighment of wagons at other stations. Operational expediency has prevailed over the need to prevent overloading and leakage of revenue on this account. Wherever the consignors have provided weigh-bridges at their cost, as in the case of Coal India, the railways are suitably compensating them by giving a rebate on the weight at a notified rate.[6] It is indicative of the fact that it is the responsibility of the railways to install and operate wagon weigh-bridges at suitable locations and rebate is offered to the consignors, if investment is made by them for the purpose. We, therefore, recommend that if the Railways are serious about preventing overloading, they should ensure that electronic weigh-bridges are installed and maintained in such order at all loading points where such commodities are loaded in bulk-whether by themselves or through customers under an incentive scheme of rebate. Weigh piecemeal wagon loading of commodities getting reduces, it should be now easier for the railways to provide weighment facilities at selected points where train loads of commodities susceptible to overloading originate

Rationalization Orders

21.10.2 This rule is contained in para 125 of Goods Tariff No. 41, Part I-(Volume I) in force from 1.8.1992. The main part of this rule, which is in force for decades, is reproduced below:

> **"125. Routing of Goods Traffic**
>
> (1) (b) In the absence of specific instructions in writing from the sender or his authorized agent to contrary, goods will be despatched by the shortest route at the charges by the cheapest route, i.e. the route by which the freight charges are at the lowest".

21.10.3 The above rule has two parts-one regarding carriage and another regarding charging. According to this rule, the goods should be despatched or carried by the shortest route and should be charged by the cheapest route. This general principle would apply only when there is no definite directive from the sender to carry any particular consignment by any particular route.

21.10.6 As far as charging is concerned, there has to be a definite rule, which is known to the staff at the time of booking and despatch of goods. The present rule is that the traffic should be charged by the cheapest route i.e. the route by which freight charges are the lowest. This rule gives the benefit of shortest route to the customer for the purpose of calculation of freight charges. It is not practicable to charge on the basis of actual carried route. At the time of booking, actual route of carriage is not known. Even at the destination station, actual route of carriage may not be known to the staff who grant delivery of goods. It is also not possible to predetermine the route by which the consignment will be transported; in actual transportation one consignment may go by the shortest route, second may go by the first alternative longer route, and the third consignment may go by the second alternative longer route. In any case, charging different consignors differently, depending on the route by which the traffic may be actually carried, leads to undue discrimination between two customers. In a system of freight structure based on average costs of actual distances traversed, charging every customer by the cheapest route appears to be the only equitable, practicable and rational method of calculating the distance for charge without causing any monetary loss to the railways in the long run. We, therefore, endorse that part of the present rule (Para 125 of the Goods Tariff) which lays down that the goods should be charged by the cheapest route, i.e., the route by which the freight charges are the lowest.

21 10.12 Having considered all aspects, we strongly recommend that IR should restore the sanctity of the rule of charging by the cheapest route in all cases, and ? cancel all rationalization orders. The powers given under Section 71 of the Railways Act are to be very sparingly used for temporary periods. Normally, no rationalization order should be renewed and continued beyond a period of one year during which the railways should find ways and means of carrying the traffic by the normal route, if they find that to be more economical.

21.10 13 Whenever any rationalization order is issued, it is imperative that entire traffic or at least preponderance of traffic is carried by the rationalized route. If most of the traffic continues to be carried by the normal route, that itself is a negation of rationalization order and naturally, the courts in such cases have allowed refunds.

Annexure 21 B

Commodities Study-Coal
(Ref. Para 21.5.11)

Table - I

Rail Movement Of Coal Traffic And Earnings

Year	Tonnage (Million)	NTKM (Billion)	Earnings (Rs Crores)	Avg lead (Km)	Avg Rate TKM (Paise)
1980-81	64 1	363 73	317 0	568	8.7
1981-82	75 8	439 62	520 5	580	11.8
1982-83	82 4	478 93	734 4	582	15.3
1983-84	89 0	547 34	960 9	615	17 6
1984-85	91 6	566 07	1077 9	618	19.0
1985-86	101 6	644 01	1362 7	634	21.2
1986-87	109 5	715 83	1677 2	654	23 4
1987-88	119 8	786 72	2049 2	656	26.1
1988-89	128 0	826 94	2267 4	646	27.4
1989-90	130 2	851 12	2814 6	654	35 1
1990-91	135 2	859 02	3114 6	636	36.3
1991-92	146 4	916 20	3570 2	626	39.0
1992-93 (prov)	157.5	999 02	NA	634	-
Percentage growth in 1991-92 over 1980-81	128 4	151 89	1026.3	10 2	338.3

Source Ministry of Railways - Annual Statistical Statements

As mentioned earlier, coal forms the most important segment of freight traffic of IR, recording a rapid growth year after year. In 1955-56, coal contributed 24.5 of total revenue earning tonnage, 25.6 of total NTKms and 12.6 per cent of total goods earnings. In 1991-92, it increased to 43.4, 37.1 and 38.4 per cent respectively. Proportion of coal traffic in total goods traffic is likely to further go up in the future. In the planning and development of rail infrastructure during the last 3 decades, first priority has been given to coal movements - by way of doubling dieselisation, electrification, other line capacity works, new routes, new wagons, and locomotives. Thus, coal is not only the backbone of Indian economy, but is also the mainstay of Indian Railways.

Table - V

Profitability Of Coal Traffic On The Basis Of Specific Flows (1991-92)

Distance	Traffic (Million tonnes) 1992-92)	Cost per tonne km (Rs)	Freight per tonne km on 1.4.92 (Rs.)	Difference
50	0.079	1.400	1.220	-0.180
100	26.139	0.780	0.610	-0.170
150	7.972	0.620	0.543	-0.077
200	9.118	0.550	0.496	-0.054
250	6.120	0.500	0.483	-0.017
300	3.745	0.470	0.460	-0.010
400	9.793	0.380	0.438	+0.058
500	4.986	0.300	0.435	+0.135
750	27.861	0.250	0.434	+0.184
1000	10.758	0.220	0.419	+0.199
1500	38.122	0.220	0.397	+0.177
2000	6.342	0.220	0.365	+0.145
2500	1.100	0.220	0.333	+0.113
3000	0.218	0.220	0.310	+0.090
3500	0.148	0.022	0.293	+0.271

Source ICWAI - Study on Railway Traffic Costing System - Chapter XXI Table 1

9. Coal moves mostly in open wagons-BOX and BOX N types. The users have vehemently complained about heavy shortages found at destination station. This could be partly due to underloading and partly due to pilferage in transit. Some traders at Ahmedabad told us that because of loss on account of shortages, they have found road transport cheaper than rail transport and, therefore, switched on from rail to road. Cement industries, Power Houses, Fertilizer factories, and Coal India have all highlighted the magnitude of this problem in their memoranda. The policies of Railways not to reweigh the coal wagons at destination stations and not to pay claims for shortages have swept the problem under the carpet. IR have almost singled out coal in the matter of booking it at owner's risk (OR). It has given them legal protection in several cases. Hence the claim bill of Railways on account of coal is mainly in regard to non-delivery of full wagons as a result of diversion of wagons to persons other than the consignees. The amount of

compensation paid on coal consignments is ranging between 0.14 and 0.30 per cent of freight earnings from coal.

Year	Amount of compensation paid (Rs Crores)	Freight earned from coal (Rs Crores)	Percentage of (1) over (2)
	(1)	(2)	(3)
1987-88	5 298	2049 2	0 26
1988-89	6 694	2267.4	0.30
1989-90	3 421	2814 6	0 12
1990-91	6 789	3114 1	0 22
1991-92	4 839	3570 2	0 14

But as mentioned earlier, this does not represent the real incidence of loss of coal in transit, which, by all counts, is much larger.

10. It has not been possible for us to find out exact empty haulage of wagons involved in movement of coal. But discussion with officers in charge of rail movement of coal indicates that a sizeable portion of movement is in close circuit, and almost the entire movement is in full rakes of open wagons. We would, therefore, reasonably assume that empty haulage for coal wagons is at least 80 per cent.

11. The element of freight in the price of the final product has been analysed for the years 1980-81 and 1991-92. Taking the average price per tonne of grade I coal as Rs. 168 and Rs. 849 in 1980-81 and 1991-92 respectively, percentage of incidence of freight at average lead in the price was 29.5 and 28.7 for the two years respectively as shown below.

	1980-81	1991-92
Average lead-kms	568	626
Freight per tonne at average lead Rs	49.52	243 83
Price per tonne (Rs)	168	849
Incidence of freight on price	29.5%	28.72%

Source Wholesale prices from Ministry of Industries

12. Due to terminal congestion and other operational difficulties, diversion of coal traffic is done. Even though to safe guard the interest of individual private consignee, diversion of public coal is prohibited, zonal

railways continue to divert coal rakes from one destination to another. Diversion leads to cross deliveries, claims, tracing, doubleaccounting ?, refund of freight etc. This has a high cost. It also results in loss of goodwill for railways.

Table VI

Taper of freight for Coal 1993-94

Distance Kms	W/L Frt Cl 135 D (Rs)	Taper W/L	T/L Frt Cl 130 D (Rs)	Taper T/L
100	6 91	100	6 71	100
200	11 29	82	10 91	81
300	15 70	76	15.17	75
400	19.91	72	19 24	72
500	24 78	72	23.91	71
600	30 35	77	29 31	73
700	35 52	73	34 29	73
800	39 87	72	38 44	72
900	44.23	71	42 65	71
1000	48 65	70	46 92	70
1100	52 39	69	50.49	68
1200	56 15	68	54.15	67
1300	60 85	68	58.67	67
1400	64.71	67	62.41	66
1500	69 20	67	66 70	66
1600	72 52	66	69 90	65
1700	75 80	65	73 04	64
1800	79 08	64	76 23	63
1900	82 01	62	79 02	62
2000	84 80	61	81.70	61
2100	86 56	60	83 42	59
2200	89 13	59	85 88	58
2300	91 72	58	88 36	57
2400	94 27	57	90 82	56
2500	96 84	56	93 30	56
2600	99 05	55	95 44	55
2700	101.27	54	97 57	54
2800	103 49	53	99.71	53
2900	105 68	53	101 86	52
3000	107.92	52	104.01	52
3100	110 13	51	106 12	51
3200	112 37	51	108.26	50
3300	114 58	50	110 41	50
3400	116 82	50	112 57	49
3500	119.04	49	114 69	49
3600	121 23	49	116 82	48

Distance Kms	W/L Frt Cl 135 D (Rs)	Taper W/L	T/L Frt Cl 130 D (Rs)	Taper T/L
3700	123 47	48	118 99	48
3800	125 71	48	121 11	47
3900	127 90	47	123 22	47
4000	130 14	47	125 40	47

Annexure 21- O

Main Data of Major Types of Wagons – Broad Gauge

Ref. Para 21.7.3

Description	Units	CR	CRT	BOXC	BOXN	BCN	BOY	BOI	BRN	TPGL	DTPN	BVZC	KC	BOBR	BCX
Length overhead stock	Mm	7162	7890	12800	9754	14500	11000	10700	13716	8382	11491	8540	5944	10671	14500
Length over buffer coupler	mm	8432	8822	13729	10713	15429	11930	11629	14645	9652	12420	9469	7214	11600	15782
Height inside	mm	2445	2675	1880	1950	2446	1175	1050	-	-	4265	2448	1600	2461	2446
Wheelbase/bogie CRS	Mm	4572	4900	2000	2000	2000	2000	2000	2000	4877	2000	5410	3504	2000	10000
Wheel DIA on tread	mm	1090	1000	1000	1000	1000	1000	1000	1000	1090	1000	1000	1010	1000	1000
Nominal Max. Axle Load	Tonnes	16 30	20 32	20 32	20 32	20 32	22 90	20 32	20 32	16 30	20 32	2032	16.30	20 32	20 32
Tare	Tonnes	10 77	13.10	25 10	22 47	25 50	19 90	22 80	23 37	20 66	27 00	13 80	10 31	26 00	28 50
Payload	Tonnes	21 73	27 54	50 18	58 81	55 78	71 49	58 48	57 91	11 81	54 28	-	22 19	55 28	57 78
Gross load (Pay+Tare)	Tonnes	32 50	40 64	81 28	81 28	81 28	91 39	81 28	81 28	32 50	81 28	14 00	32 50	81 28	81 28
Floor area	Sq M	21.15	23 20	36 50	28 87	42 67	32 13	30 47	-	-	-	-	16 88	-	42.67
Cubic capacity	Cu M	51 40	61 90	68 58	56 29	104 00	37 80	32 00	-	24 10	-	-	27 00	57 20	104 00
Payload to tare ratio		2 02	2 10	2 23	2 61	2 18	3 59	2 56	2 47	0 57	2 01	-	2 15	2 12	2 02

Source Mechanical Directorate, Railway Board

CHAPTER 22
Demurrage and Wharfage

Free Time for Loading and Unloading

22.2.1 Demurrage is a charge for detention of a wagon beyond free time allowed for loading or unloading. It is not a charge for any service rendered, but a compensation for the loss caused to the railway due to extra time taken by the consignor or the consignee in loading or unloading of goods, resulting in detention of a wagon. It is, therefore, rightly stated that demurrage is not a source of revenue. We understand that in a recent development a view is being advocated that demurrage is a source of revenue. If this is correct, we would like to clarify that we do not agree with this approach. The sole object of demurrage rules and charges is to reduce wagon detentions and improve wagon turn-round. But if these rules become so deterrent that they cause harassment to the customers, the effect would be hurting the main source of revenue, which is freight, and not demurrage or wharfage.

TABLE 22.1

Free Time for Loading and Unloading of Wagons - Typewise and Numberwise

Type of wagons	No. of wagons	Free time (working hours) Loading	Free time (working hours) Unloadin
(1)	(2)	(3)	(4)
Ordinary Wagons (CC rakes)	1-20	5	6
	21-39	5	7
	40 & above	5	10
Box Wagons			
(i) When loaded with heavy iron & steel materials	1-10	5	9
	11-19	6	9
	20 & above	8	12
(ii) When loaded with other than heavy iron & steel materials	1-10	5	5
	11-19	6	6
	20 & above	8	9
(iii) For mechanical loading of BOX wagons	Any number	5	-
(iv) BOX 'N' wagons	Up to 44 wagons	8	9
	45-54 wagons		
	Mechanical loading /unloading	9	10
	Manual loading/unloading	10	11

	55 & above			
	Mechanical loading/unloading		9	10
	Manual loading/		10	11
	Unloading		10	11
(v) BFR/BRH wagons	1-10		5	9
When loaded with billets and heavy iron & steel	11-19		7	9
materials	20& above		9	9
When loaded with other than billets and	1-10		6	6
heavy iron and steel materials	11-19		7	7
	20 & above		9	10
(vi) JUMBO rakes of BCX (in terms of BCXs) or CRT wagons	1-10		6	6
	11-19		7	7
	20 & above		9	10
(vii) POL Tank wagons	BG	MG		
	1-29	1-19	5	5
	30-45	20&above	5	8
	46 & above		5	10

Source. Notifications of Railway Board

22.2.8 Railways have made separate free time rules for Steel Plants, after getting joint studies conducted by Expert Committees of senior officers of S.E. Rly, Railway Board, SAIL, Planning Commission and Ministry of Steel appointed from time to time. Existing free time allowances for steel plants are based on the recommendations made by the last Expert Committee in 1984, and implemented under Railway Board's letter no. TC-I/81/2059 dated 24.6.85. These are far more liberal as compared to others. Some of these allowances for other users mentioned in Table 22.1 above. Moreover, Steel Plants are allowed additional terminal allowance, bunching allowance, block rake allowance, monsoon allowance, construction allowance and unfit wagon allowance. Another feature of Steel Plant free time rules is that Steel Plant is given credit for wagons hours saved by release of wagons early, and credit hours are adjusted against debit hour on monthly basis. They are also given a rebate of 2 per cent on full payment of the undisputed amount of the demurrage bill within 10 days of submission of the bill. These are not given to other bulk users.

Table 22.2

Free Time in Steel Plants

Types of wagons	No. of wagons	Free Time (in hours)	
		Loading	Unloading
(i) KC,CV,CG,BKC,BCX,CRT and BOX wagons*	Any number	48	48
(ii) BFR/BRH and other bogie flats	Any number	35	35
(iii) Tank LSHS rakes	Up to 60	48	-
(iv) Other tank wagons	Up to 60	30	24

*Additional 12 hours allowed for unloading jumbo rakes of 30 or more BCXs or other equivalent wagons

22.2.10 The principles of giving credit for releasing the wagons earlier as envisaged in the free time rules for steel plants, is a very sound principle, and should be adopted in all major sidings dealing with train load traffic. This is in line with the objective of minimising terminal detentions, and should serve as an incentive to the siding holder for making special efforts for early releases on normal days to make up for mechanical or human failures or unavoidable circumstances on some other days. Adoption of this credit debit system has been overwhelmingly suggested by railwaymen as well as rail users and we strongly recommend this measure in the mutual interest of the railways and the customers. In this connection, we would like to refer to an incentive scheme introduced by South Eastern Railway at ore loading points of Kirandul and Bacheli vide General Manager, South Eastern Railway's letter No. MG58/217/Pt.I dated 24.1.1992. Briefly the built-in incentive scheme is as follows:

(i) While the normal free time is 5 hours, the loader would be entitled to log-up credit hours only if more than 50 per cent of the rakes supplied in a calendar month are loaded within 4 hours.

(ii) The credit hours are calculated on the following basis:

Time taken for completion of loading & offer	Incentive admissible
5 hours to 4 hours	No incentive
Below 4 hours	Full credit (4 hours minus actual loading time)

22.2.11 Traffic Costing Study conducted by ICWAI as well as productivity study conducted by RITES have confirmed the general observation that wagons are detained for long hours at terminals even after completion of loading/unloading, awaiting arrival of the locomotive to haul the loaded/released rake. This happens because a locomotive which brings a train to a siding does not wait there for return haulage. The diesel and electric locomotives need not be taken to the shed as is the case with steam locomotive on termination of each train. Hence empty haulage of diesel / electric locomotive as well as extra detention of wagons remaining idle at terminals while waiting for arrival of another locomotive can be fruitfully saved, if the system of "engine-on-train" or dedicated engine is introduced, as has been done by SE Railway on some sections. Of course this would necessitate reduction in actual time for loading/unloading, which in turn may require creation of extra facilities at the sidings. It would be ideal, if free time is reduced to 4 hours or so by way of an agreement between the Railway and the siding holder. Railways should provide a cash incentive to compensate him for additional input costs. Once such an agreement is entered into, and if the free time is then exceeded, the siding holder should be liable to pay demurrage not only for detention of wagons but also detention of a locomotive on the basis of cost per engine hour Quantum of cash incentive should be adequate to compensate the owner for additional expenses incurred by him, and is to be worked out separately in each case. If the approach of the railways is business like, any new scheme should be of mutual benefit, and not one sided as is often the case with a monopoly.

Table 22.3

Demurrage Rates in Force from 15.10.92

Goods vehicles/Coaching vehicle (other than passenger coaches)	Rate per tonne or part of a tonne on the C C of a wagon per hour or part of an hour, in excess of free time notified
First 24 hours	Re 1 00
Next 24 hours	Rs. 1 50
Third day and after	Rs. 2 00
Vegetable Oil Tanks	
First day	Rs 2 00
Second day	Rs 3 00
Third day and after	Rs 4 50

Note Higher demurrage charges of Rs 6 00 per tonne per hour where a railway administration notifies its intention to levy a higher demurrage charge in cases in which the state of traffic or any sudden emergency makes it necessary to do so

22.3.5 At the existing rates of demurrage given under Table 22.3, charges for detention of a B.G. wagon per day (24 hours) work out as under:

Types of wagon/ train	Rate per day (in Rupees)		
	First day	Next day	Subsequent days
Four-wheeler (23 tonnes)	552	828	1104
BOX/BCX (55 tonnes)	1320	1980	2640
BOX "N" (58 tonnes)	1392	2080	2784
For a train of 35 BCXs	19320	28980	38640
For a train of 58 Box N'	80736	120640	161472

A.B.C. wagon (four-wheeler) earned 1410 NTKms per day in 1990-91. Average rate per NTKm was 34 35 paise in the same year. The gross earnings per wagon day thus comes to Rs. 498 per day. It may come to near about Rs. 552 per day at the freight rates now in force. Demurrage rate for the first day (24 hours) has thus been almost equated to gross earnings per wagon day. This equation suffers from a serious fallacy. Loss of earning due to stabling of a wagon cannot be the same as gross earnings of a wagon. Railways have to incur haulage, terminal and marshalling costs to earn the freight. Potential earning of a stabled wagon can at the most be equated to average freight minus incremental cost, which on a broad analysis made by Zonal Railways ranges between 50 and 60 per cent of fully distributed cost. We, therefore, feel that the Railways would be fully compensated for loss of earnings due to detention of a wagon with an element of penalty, if they charge 75 per cent of average freight earned from a wagon per day. On this basis, demurrage rate be fixed at 75 paise per tonne per hour or Rs. 400 per wagon day (B.G. four wheeler) on the first 24 hours. For next day or subsequent days, the rate may be more deterrent, about 50 percent higher than the first day rate. We, therefore, recommend the following demurrage rates.

Detention Time	Rate per tonne or part of a tonne on the c c of the wagon per hour or part of an hour, in excess of free time	
	Existing (Rs)	Proposed (Rs)
First 24 hours	1 00	0.75
Next 24 hours	1.50	1.20
Third day and after	2 00	1.50

(Rate for tank wagons and maximum limit given in Table 22.3 may also be scaled down by 25 per cent)

22.3.6 The proposed rate would still be higher than the special rate now applicable to steel plants and collieries. We feel that while free time may vary from customer-to-customer depending upon operational requirements, demurrage rate should be uniform for all users It is, therefore, desirable that the proposed rate may also be made applicable to steel plants and collieries.

SUMMING UP

22.6.1 To sum up, we recommend the following:

Demurrage

(i) It is not practicable and equitable to fix uniform free time for loading and unloading in respect of all sidings. Free time for each major siding should be determined after a joint study of the nature and size of operations and the layout of the sidings, as has been done in the case of Steel Plants.

(ii) The principle of giving credit for early releases, as adopted in the case of steel plants, should be extended to other major siding holders.

(iii) System of "engine-on-train" or dedicated engine should be introduced at as many places as possible. Incentive should be given to the siding holders for incurring additional cost of inputs required for reducing free time for the purpose of implementing this system. In such a case, Railways may charge demurrage for detention of an engine also if it occurs beyond agreed free time.

(iv) The present rule of charging demurrage for the entire train even if one or two wagons are detained should be applicable only when customer has been given benefit of a reduced train-load rate. In other cases, the demurrage should be charged by either treating each wagon in a group as a piecemeal wagon with minimum free time of 5 hours or treating it as a group with higher free time, which ever is lower If one or two wagons from a rake are left unloaded, demurrage should be charged for detention of one or two wagons only and not for entire rake.

(v) Where a train load comprises wagons booked to more than one consignee, free time be given to each consignee according to number of wagons belonging to him. But this will not apply in the case of endorsed consignees.

(vi) In pilot-to-pilot system of working, the time schedule of the pilot should be adhered to.

(vii) If wagons are detained in a private/assisted siding due to blocking of despatch lines in the exchange yard on account of non-availability of a railway locomotive, no demurrage should accrue on such detentions for which railways are responsible.

(viii) If a rake is placed in an exchange yard in more than one lot at different timings, either free time should not commence from the time of first placement or the party should be allowed to load each lot separately with full benefit of a trainload rate.

(ix) The time required for haulage of wagons between a station and a siding should be in addition to the free time which is prescribed for loading/unloading operations only.

(x) Zonal Railways should be given full authority to fix free time allowance for each siding/customer. Railway Board's approval should not be required.

(xi) Demurrage rates should be reduced by 25 per cent. The rates should be uniform for all customers including steel plants and collieries.

(xii) Waiver of demurrage should be an exception and such exceptions should be made in the circumstances for which either railways themselves are responsible or external forces not within the control of the customers are responsible. The reasons for waiver should be recorded in every case.

Copy Of Railway Board's Letter No. Tci/201/72/27 Dated 23.4.1986

Annexure 22 A
(Para 22 3.3)

1. In supersession of the instructions contained in Board's letter of ever number dated 29.2.1980, the powers of officers at different levels for the waival of wharfage and demurrage charges will be as under.
2. No prior concurrence of the Finance need be obtained for cases of waival of demurrage and wharfage charges upto Rs. 25,000/-
3. Although no hard and fast rules or rigid guidelines can be laid down for exercising the discretion in the waival of wharfage and demurrage charges, the following aspects and circumstances should be taken into account by the competent authority while waiving these charges:-

(a) The need to sustain and attract traffic to the Railways and to assist in the marketing efforts;
(b) The nature and the value of the goods in relation to the freight and wharfage/demurrage dues;
(c) The amount likely to be recovered, if the goods are not taken delivery of and as a consequence of which the same has to be disposed of by public auction as per rules;
(d) The extent of damage or deterioration the goods might have suffered;
(e) The extent of delay in transit;
(f) The cause for delay in unloading or taking delivery of goods and extenuating circumstances, if any;
(g) The local conditions at a particular station;

Designation of Officers	Wharfage* Rs.	Demurrage (per wagon) Rs
1. CCS/COPS/CMS/CCO/DRM	25,000	25,000
2 Level II officers of the Commercial/Operating Departments at the Headquarters as well as in Divisions including Area Officers	12,000	12,000
3 ADRMs and JA Grade Officers	6,000	6,000
4 Senior Scale Officers	3,000	3,000
5 Assistant Officers	1,500	750

*The Powers for waival of wharfage charges indicated above will be on consignment basis except in the case of trainload consignments where it will be applicable on per wagon basis

(h) Whether the circumstances under which the wharfage or demurrage charges accrued were really beyond the control of the consignor or the consignee;

(i) The size of the goods shed and its vulnerability for congestion if the goods are not removed, leading to operating restrictions on this grounds;

(j) railway's inability to grant delivery on indemnity note for want of wagon labels or invoice not received at the destination station;

(k) capacity of a siding for dealing with train-loads within the prescribed free time;

(l) bunching of arrival and placement of trains/wagons as distinct from placement at regular intervals to deal with normal quantum of traffic;

(m) strikes of labour, road vehicles, etc., general bandhs, agitations, riots, curfews of similar other abnormal situations over which consignor/consignee has no control.

(n) Time taken in granting open/assessment delivery.

The above aspects are not exhaustive and individual cases may require other factors such as operational or commercial consideration, and railway customer relations to be taken into account while taking a decision about vaival? of these charges and the extent thereof.

Chapter 23
Private and Assisted Sidings

Capital Cost

23.2.5 As far as initial investment on provision of a siding is concerned, we are of the view that entire cost should be borne by the user. This would cover cost of land, cost of labour and materials required for laying down railway lines for reception, despatch, sorting, loading unloading detachment of sick wagons, etc. electrification wherever necessary, office building, staff quarters, and other facilities required for working of the siding and the overheads. However, if any augmentation of operating facilities at the existing crossing station is required or opening of a new crossing station is required, cost of such facilities or construction of a new station should be entirely borne by the Railways. It is only proper that provision of such facilities or a station on the main line should be owned by the railways and not by a private party, as otherwise, the latter would be well within his rights to prevent the railways from making use of them for general operation. This investment would be amply financially justified on the basis of additional net revenue which the railways will get from the traffic of the new siding.

23.2.8 The design of the layout as well as the provision of facilities in a siding are finalised by the Railways at the time of it construction. Later on, it may become necessary to expand the facilities or modify the layout of the yard or loading/unloading lines, for the following reasons:-

i) Increase in traffic due to expansion of the plant, or

ii) Operational improvements and requirements of the railways due to change in traction, haulage of heavier loads, changes in operating strategy, change of gauge, etc.

"The Associated Cement Cos Cement Works at Wadi in Solapur Division of Central Railway are provided with infrastructural facilities for direct reception and despatch of trains by passing Wadi Marshalling yard. The rail yard in the Private Siding has six reception-cum-departure lines, engine run round line, three sick lines and office accommodation for operating, commercial and wagon examination and repair staff Provision of these facilities costing Rupees Three Crores approximately enabled Railways to save one shunting engine which used to run as pilot between Wadi Marshalling Yard and Private Siding Across heavily staurated Bombay Madras main line. For incremental traffic consequent on expansion of Wadi Works to 1.8 million tonnes railways did not provide any additional facilities at Wadi marshalling yard as railway authorities forced Wadi Works to provide all facilities for direct dealing of traffic at the rail yard of Wadi siding. Arrangements in connection with direct dealing of Wadi Works traffic by passing Wadi Marshalling Yard eliminated 50 hours average detention to wagon at Marshalling Yard, as, after expansion Wadi Works inward and outward traffic wagons do not go to this yard at all. By streamlining work in connection with dealing with wagons in siding's rail yard detention has been reduced from 60 hours to 35 hours (18 on railways account due to delay in ordering of ready for despatch rakes) i.e. 25 reduction in rail yard of Wadi Works. In the Wadi station, Wadi Siding complex reduction in average detention to wagons has been 75 hours. The works deal with 250 wagons a day. Elimination of 50 hours detention at Wadi Marshalling yard and Wadi siding has saved for railway (250 x 75) / 24 = 780 wagon days. In other words on the basis of 14 days turn round, Wadi Works Private Siding, by taking over train dealing functions has saved about (780 x 30) / 14 = 1671 wagons for loading per month or 56 wagons a day."

We are of the view that investment required for works necessary to deal with increased traffic falling under item (i) should be fully born by the siding holder, and investment required for works necessary to meet operational improvements and requirements of Railways falling under item (ii) above be equally shared between the Railways and the siding holder. This sharing of cost is already being done for electrification of an existing siding. We recommend extension of the same principle to gauge conversation, lengthening of lines to accommodate longer trains, and modifications needed to reduce detention of the locomotive and wagons. Railway may safeguard their interests by keeping a clause in the agreement that in the event of closure of the siding, railways would have a right to remove all detachable material used for the expansion/ modification, in the same way as in the case of assisted sidings. We feel that this arrangement of sharing would be more equitable, and hasten the pace of making operating improvements which would benefit the operation of the Railways. The amount involved may not be very significant in the size of total plan outlay of Indian Railways. In any case, the freight charges should take care of additional costs in the long run.

Our Views

23.6.1 We have examined various recurring charges in the form of maintenance charge, siding (haulage) charge and staff charge, recoverable from the owners of assisted and private sidings. Various representations made and arguments advanced by the siding holders for abolition or rationalization and simplification of these charges have been carefully considered. We feel that simplification of these charges have been carefully considered. We feel that simplification and rationalization, which IR had already done in respect of terminal charges and transshipment charges should now be extended to siding charges also. Terminal charge was merged in the freight on the recommendation of the Railway Freight Structure Enquiry Committee. Transshipment charge was merged in freight on the recommendation of RTDC. We now recommend merger of siding charges in the freight, for which one step has already been taken by IR in 1987, as stated in para 23.4 10 above. In other words, -

(a) Railways should not levy any charge for maintenance of a siding or for haulage of a locomotive on a siding or for posting of staff inside the siding;

(b) Freight should be charged for the distance upto the farthest end of the siding on continuous kilometrage basis.

Our reasons for making these recommendations are as under:

(i) Sidings are now the main terminals of the Railways. The bulk traffic dealt with on these sidings cannot be dealt with at station goods sheds The old theory of recovering separate costs for working a siding on the ground that additional traffic, in absence of a separate siding, could be handled at a station, does not hold good any more in respect of most of the siding traffic, particularly in the context of the prevalent policy of train load booking and end-to-end movement

(ii) Freight structure encompasses all functions including terminal, transshipment, marshalling and haulage. There are no separate cost based charges for any of these functions. It is not rational to single out sidings alone, mainly because the same have been constructed at the cost of one customer in his premises. Private investment in construction of a siding should not be come detrimental to investors.

(iii) All India average cost of an engine hour is affected by a large number of variables. It is not a customer-wise or a siding-wise cost. If an all India average cost is to be applied, it would be better if the total cost on working of the sidings is also recovered through freight rates based on average costs.

(iv) Once the principle of charging freight upto the farthest end of a siding is applied, as has been done in the case of train load movements direct inside the siding under Railway Board's Circular of 1987, and also in case of the Colliery sidings, payment of maintenance charge or staff costs over and above the all inclusive freight charge cannot be justified. Siding is to be treated at par with a branch line for which no such charges are levied.

(v) It is far simpler and easier to recover all costs through freight rather than through separate bills which remain outstanding for long periods and become a subject matter of disputes. Maximum litigation before RRT has been in regard to siding charges.

23.6.5 We would, however, like to make a distinction in respect of those major siding on which the siding holder uses his own locomotive for haulage of wagons from interchange point to the siding. In such cases, freight is recovered upto the interchange point only. It is, therefore, logical that the siding holder should either maintain his own track or pay maintenance charge to the railways if the track is to be maintained the railways. However, even in these cases, railways should bear the cost of commercial clerks, because that cost has to be incurred by the railways even if the staff were to work at station.

Chapter 25
Freight Traffic – Miscellaneous Matters

Owner's Risk

25.4 6 It is true that coal, which is carried in open wagons and which is an article of common use at all places, is more prone to pilferage. This special characteristic of the commodity should be taken into account of fixing the rate. In our view, this can be taken care of adequately by charging coal at RR at 5 per cent higher than the normal OR rate. In other words, the RR rate of coal should be 5 per cent more than OR rate instead of 20 per cent now charged. Those whose experience shows that transit loss is more than 5 per cent of freight may then start booking their consignments of coal at RR rate. We feel that with this change, booking of some coal will start at RR rate. At present, freight earnings from coal are of the order of Rs 5000 crores, five per cent of which come to Rs. 250 crores. We do not think that even it everyone books coal at RR rate, claims bill of the railways will go up to that extent. But we do urge the railways with all the emphasis at our command that they should strengthen their security arrangements to tackle this problem with heavy hand and provide fool proof arrangements for weighment of coal in the collieries as well as at important stations on the other hand to be able to effectively tackle the problem of pilferage. It is in national interest that loss of coal in transit should be stopped. IR may review the position after one year to see whether the reduction in the differential between OR rate and RR rate along with other claims prevention measures produce the desired results or not.

Diversion Of Wagons On Operational Grounds

25.5.1. Rules provide for diversion of wagons from the booked destination station to another station on the request of the consignor and on payment of diversion fee. This is a facility given to the customer which is sparingly used and does not post any problem. But the practice of diversion of wagons and goods trains carrying coal and food grains for operating convenience is not envisaged in any rule-neither in Goods Tariff nor in Commercial Manual. Railway control orders such diversions without any request from the original consignee and without the concurrence of the divertee. This is in total violation of the rights of any carrier. In case of congestion in a section or in a terminal, booking of new consignments may be temporarily restricted, but those in the pipeline cannot sent away to another person at another place.

25.5.2 Though instructions have been issued by Railway Board from time to time to stop such diversions or not to order such diversions without prior approval of Railway Board, the diversions are continuing unabated. Apart from the fact that this practice is unethical, these diversions create a lot of unproductive work for the commercial and accounts departments. Original consignees prefer claims on the basis of railway receipts held by them. They also apply for refund of freight, if paid. On the other hand, divertees keep quiet till such time railways make a demand on them to pay the value of goods. The freight paid by the divertees remains under suspense, and if the freight is payable at the original destination, it remains outstanding there to clear which supersessional railway receipts have to be issued by the booking stations. It takes months and years to clear these claims, counter claims and outstandings. Moreover, there is no fool proof system of documenting these diversions, particularly when more than one railway is involved.

25.5.3 We strongly recommend that diversion of wagons or trains on operational grounds should be stopped. For diverting any wagon on the request of the consignor, procedure prescribed in the Commercial Manual should be followed. Any violation of the same should be viewed seriously.

Qualified Railway Receipts

25.8.3 We would discuss different aspects of this problem. First is about the description of the goods booked. There does not appear to be any justification for the railway to shirk its responsibility of verifying the nature of goods before booking. It should be possible for the staff to do so. If he cannot, he should be educated and trained to be able to do so. It is recommended that issue of qualified railway receipt in respect of description should be stopped wherever the goods can be seen from outside. The second aspect is about number of bags or packages booked and loaded. The consignor declares the number in the forwarding note. In the case of a piecemeal wagonload, the staff in the goods shed or in the private siding should be made to supervise loading, count the bags and issue clear railway receipt. Any omission in this regard should be treated as dereliction of duty. The difficulty arises when a full rake of 30 to 40 wagons is loaded with 8 to 10 hours, during which it may not be physically possible for a limited number of staff to count the bags loaded in each wagon. But the staff should be able to generally supervise the loading operations, and detect irregularity if any. Remarks to the effect "loading not supervised by staff" should not be passed on the railway receipt. Clear receipt number should also be given in those goods sheds and sidings where rake loads are regularly loaded. The traffic will justify additional staff required for the purpose. But a stations where block load is occasionally booked, the staff may be allowed to endorse a remark of said to contain"....bags/packages/pieces". In these cases, intactness of the seals should be the guiding principle for accepting the claim for shortages. If seals are broken, the railway should pay the claim irrespective of 'said to contain' endorsement on the railway receipt. Instructions to this effect already exist, but claims are still being repudiated, by claims officers on the ground of 'said to contain' remarks even when wagon seals are found to be broken. Railway Board should ensure that responsibility is fixed for wrong repudiations Third kind of qualifying remarks is in regard to weight of consignment. Goods like coal, stone, wood, ores etc. are in bulk or loose condition. Those can be weighed only after loading in wagons, for which wagons weigh bridges are necessary. We have already recommended that weigh-bridges should be available at every station/siding where goods of this type are loaded, and that these should be kept in working order and that weighment is necessary for prevention of overloading as well as under loading (paras 21.8 6 to 21.8.8). Weighment is also necessary for issuing clear railway receipts. Hence, we reiterate our recommendations that wagons containing loose goods should be weighed at the booking station and clear railway receipts should be issued showing actual weight.

25.9.2 Users have represented to us that local officers refuse to reweigh the goods at destination station on the request of the consignee even though there are signs of tampering en-route or the shortages are apparent of packing is disturbed. In the event of the refusal by railway, the consignee is left with no choice other than to get is weighed on a private lorry weigh bridge and prefer his claim for shortage on the basis of such re-weighment Though the Railways do not entertain claims on the basis of such reweighments, the consignees are able to get compensation from the railways by filing an application before Railway Claims Tribunal. It is rather unfortunate that regular customers of the railways have to take recourse to courts or tribunals for getting their claims. This can be avoided, if the local officers are more realistic and reasonable in allowing reweighment of goods in the circumstances which suggest possible shortages. We suggest to the railways to be more reasonable in this regard for improving their relations with customers, and for ascertaining correct shortages.

PART VI

Railway Rates Tribunal

CHAPTER 29

Existing Jurisdiction

29.3.1 Sections 36, 37 and 39 of Railways Act, 1989 govern the jurisdiction of the RRT. These are reproduced below:

"36. Complaints against a railway administration – any complaint that a railway administration-

(a) is contravening the provisions of Section 70; or

(b) is charging for the carriage of any commodity between two stations a rate which is unreasonable; or

(c) is levying any other charge which is unreasonable, may be made to the Tribunal, and the Tribunal shall hear and decide any such complaint in accordance with the provisions of this Chapter.

37. Matters not within the jurisdiction of the Tribunal-Nothing in this Chapter shall confer jurisdiction on the Tribunal in respect of-

(a) classification or reclassification of any commodity;

(b) fixation of wharfage and demurrage charges (including conditions attached to such charges);

(c) fixation of fares levied for the carriage of passengers and freight levied for the carriage of luggage, parcels, railway material and military traffic, and

(d) fixation of lump sum rates.

Wharfage and Demurrage

29.7.1 Clause (b) of Section 37 bars the jurisdiction of the Tribunal in respect of fixation of wharfage and demurrage charges (including conditions attached to such charges). Our interaction with the trade and commerce has convinced us that railway administration has not always been fair and reasonable in the matter of fixation of free time and wharfage and demurrage charges. There is an overwhelming evidence to indicate arbitrariness on the part of the railway management in dealing with problems of the users on this account. Even though the financial implications of payment of demurrage charges by the millionaire customer of the Railways, like State Electricity Boards, Coal India, Steel Authority of India, Cement Plants and Fertilisers Plants, who pay hundreds of crores of rupees as freight to the railways, are minor, but they are much hurt on account of unfair attitude of the railways in this regard. We have made certain recommendations in the chapter dealing with wharfage and demurrage to tackle some of these problems. However, in the operating environment as we see today, we are of the view that RRT should have mandatory jurisdiction to deal with complaints regarding fixation of wharfage and demurrage charges including free time.

Annexure 3.1

Report on the samples drawn / analysed at the loading points by Coal Controller's Organisation

CCL													(Figures in thousand tonnes)
				Despatch			% Coverage of sampling	Samples drawn	Analysis Results				Remarks
Sl No.	Colliery/siding	Notified grade	Linked TPs	Rail	Road	Total			+1GR	Same	-1 GR	-2 GR	
1999-2000													
1	Bhurkurda/BHK CHP SDG	ROM CLF	BTPP, FDB, BTI	164	-	164	21 3	11	-	10	1	-	CLF
2	Saunda-D CCL Saunda SDG	ROM-E	HC, TD, BTI	4	-	4	0	-	-	-	-	-	-
3	AK Saunda, C Saunda, Saunda-D/CCI, Saunda SDG	ROM CLF	PNP, PIC	243	-	243	11 5	11	-	6	5	-	DLF
4	Saunda-D/CCL Saunda SDG	ROM E	BTI, TD	14	-	14	50	3	-	2	1	-	E
5	Sayal-I/Sayal-D CHP SDG	ROM CLF	RTP, BTI, BTPP	433	-	433	12 2	17	-	15	2	-	CLF
6	Urimari/C Saunda SDG	ROM E	BCI, RTP	227	-	227	15	11	-	10	1	-	E
7	Hendegir/Hendegir SDG	ROM DLF	BTI	12	-	12	0	-	-	-	-	-	-
8	Gidi-A/Gidi-A CHP SDG	ROM CLF	FDB, RTP, BTI	262	-	262	42	31	-	24	7	-	CLF
9	Gidi-C/Gidi-C CHP SDG	ROM CLF	FDB	71	-	71	21 1	5	-	2	3	-	DLF
10	Sirka/Sirka CHP SDG	ROM CLF	BTPP, FDB, PNP	267	-	267	26 2	21	-	15	5	1	CLF
11						0							
12	Kedla (W)/Gidi SDG	Middl	BTPP, BTI, FDB	152	-	152	6 6	3	-	3	-	-	E
13	Kerketta, Rohini, Dakra/KD	ROM E	PTPS, LHM	1537	-	1537	8 7	38	-	21	16	1	F

CCL													(Figures in thousand tonnes)
				Despatch			% Coverage of sampling	Samples drawn	Analysis Results				Remarks
Sl No	Colliery/siding	Notified grade	Linked TPs	Rail	Road	Total			+1GR	Same	-1 GR	-2 GR	
	(O) SDG												
14	Piparwar/KD (O) SDG	ROM E	HIG, LHM, RTP, BTI, PNP	283	-	283	14 5	13	-	12	1	-	F
15	Kd (H)/KD (N) PF-1 SDG	ROM E	RTP, PTPS	2681	-	2681	4 8	40	-	28	12	-	E
16	Piparwar/KD (N) PF-I	ROM E	PTPS, PNP	35	-	35	0	-	-	-	-	-	-
17	Ashoka/RD (N) PF-II SDG	ROM E	PNP, TD, Obra	241	-	241	9 5	7	-	4	3	-	F
18	Dakra, Ashoka/Dakra (M) SDG	ROM E	TD, RTP, PC PNK	948	-	948	11 9	35	-	23	12	-	F
19	Piparwar/Dakra (M) SDG	ROM F	HJ/RTP	18	-	18	16 7	1	-	-	1	-	G
20	Piparwar/Bachra Spur SDG	ROM F	ladn	170	-	170	100	47	-	23	24	-	G
21						0							
22	Bachra/Bachra CHP SDG	ROM BLF	FDB	44	-	44	6 8	1	-	-	1	-	CLF
23	Piparwar/RCM SDG	ROM F	ladn	1170	-	1170	37 7	203	1	159	43	-	F
24	Ashoka/SCM SDG	ROM E	ladn	1803	-	1803	24 6	210	-	38	169	3	F
25	Rajrappa/Raj (W) SDG	Midd E	ETI	440	-	440	0	-	-	-	-	-	-
26	Tapin (S), Tapin (N), Parej (E)/Dump	Middl	TTPS	-	827	827	0	-	-	-	-	-	-
27	Sarubera, Ara, Topa, Pundi/ NR SDG	ROM W-IV	PNP, FDB, BTPP	322	-	322	55 6	51	-	29	16	6	W-IV
28	S Dhori (Qry I)/S Dhori CHP SDDG	ROM IV	BTPS, PNP	730	-	730	8 6	28	1	25	2	-	W IV
29	S Dhori (Qry III)/Tarmi SDG	ROM F	RTP, PNP	567	-	567	13 2	23	1	22	-	-	F

CCL

(Figures in thousand tonnes)

Sl No.	Colliery/siding	Notified grade	Linked TPs	Despatch			% Coverage of sampling	Samples drawn	Analysis Results				Remarks
				Rail	Road	Total			+1GR	Same	-1 GR	-2 GR	
30	Amlo/Amlo SDG	ROM F	RTP, PNP	149	-	149	6 7	3	-	3	-	-	F
31	Dhon/Dhon SDG	ROM F	RTP, PNP	399	-	399	9 5	11	-	6	5	-	F
32	Khasmahal, Karo/Jarangdih PF-I SDG	ROM E	RTI, PNP	668	-	668	13 8	26	-	13	12	1	F
33	Jarangdih/Jrd PF II	ROMW-IV	RTI, PNP	536	-	536	12 7	21	-	15	6	-	W-1V
34	Gindh/CP	ROM E	BTPS	38	-	38	0	-	-	-	-	-	-
35	Rajhara/Rajhara SDG	ROM E	PIC	48	-	48	0	-	-	-	-	-	-
36	KG, SW, KT washery SDG	WC	BTPP	586	-	586	0	-	-	-	-	-	-
1998-99													
37	Bhurkunda/BK CHP SDG	ROM CLF	FDB	94	-	94	92 5	35	-	20	14	1	CLF
38	AK, Saunda, C Saunda	ROM CLF	PNP, IP, FDB	312	-	312	88 8	164	1	112	40	11	CLF
39	Saunda-D/CCI Saunda SDG	ROM CLF (NU Goal)	HDG, RTP, FDB	61	-	61	80 8	34	-	12	16	6	DLF
40	Saunda-D/CCI Saunda SDG	ROM-E	IP, FDB, PN, RTP	148	-	148	78	98	1	61	29	7	E
41	Sayal-D/Sayal-D CHP SDG	ROM BLF	FDB	255	-	255	39 8	85	-	13	52	20	CLF
42	Unman/C Saunda SDG	ROM-E	PNP, BTI, RTP	412	-	412	85	108	-	75	32	1	E
43	Hendegir/Hendegir SDG	ROM DLF	IP, PNP, PTPS	57	-	57	100	26	-	16	9	1	E
44	Gidi A, Religara	ROM CLF	BTPP, BTI	525	-	525	93.5	158	1	115	33	9	CLF
45	Gidi-A CHP sdg		FDB, IP			0							
46	Gidi-C/Gidi-o CHP, SDG	ROM CLF	FDB, IP, BTPP	107	-	107	92 5	38	1	26	11	1	CLF
47	Sirka/Sirka washery sdg	ROM CLF	FDB	360	-	360	90 8	102	3	48	40	11	DLF
48						0							

CCL													(Figures in thousand tonnes)
				Despatch			% Coverage of sampling	Samples drawn	Analysis Results				Remarks
Sl No	Colliery/siding	Notified grade	Linked TPs	Rail	Road	Total			+1GR	Same	-1 GR	-2 GR	
49	Kedla (W) Dimp	Middle E	TTPs	-	109	109	67.8	26	2	10	11	3	F
50	Karketa, Rohini, Dakra/Kl (Old) sdg	ROM E	BTI, RGT, RTP, HDG, Obra	1469	-	1469	50 1	290	-	136	144	10	F
51	Piparwar/KD (old) SDG	ROM F	RTP Obra, HDG BTI	208	-	208	76	160	4	127	29	-	F
52	KDH/K D (N) PF-1 SDG	ROM E	PTR, HGJ, RTP	2075	-	2075	45	311	-	184	126	1	E
53	Piparwar/KD (N)	ROM E	PTPS, RTP, IP	17	-	17	70 6	80	-	71	9	-	F
54	Ashoka/KD (N) PF-2 SDG	ROM E	PTPS, RTP, IP	27	-	27	74 1	6	-	1	5	-	E
55	Dakra, Ashoka/Dakra (M) SDG	ROM E	BTI, PTPS, PNP, RTP	1163	-	1163	68 5	244	-	145	99	-	E
56	Piparwar/Dakra (M) SDG	ROM F	PTP, RTP, PNP	31	-	31	100	42	-	30	12	-	F
57	Piparwar/Bachra/Spur SDG	ROM F	Dadri	231	-	231	98 7	65	5	51	9	-	F
58						0							
59	Bachra/Bichra CHP SDG	ROM BLF	IP, ITPP	65	-	65	70 8	15	-	10	4	1	CLF
60	Piparwar/RCM SDG	ROM F	Dadri, PNP	951	-	951	61 8	235	4	200	29	2	F
61						0							
62	Ashoka/RCM SDG	ROM E	Dadri, PNP	1231	-	1231	50 4	277	-	49	207	21	F
63	Rajrappa (W)/Rajrappa washery SDG	Middl E	BTI, BTPP	582	-	582	90	155	4	101	47	3	E
64	Tapin (N), Tapin (S), Paraj/HZB Dump	ROM W-III, W IV	TTPS	-	223	223	0	-	-	-	-	-	-
65	Sarubera, Ara, Topa,	ROM W-IV	BTPP	541	-	541	95 7	154	-	85	51	18	Washery-IV

CCL													(Figures in thousand tonnes)
				Despatch			% Coverage of sampling	Samples drawn	Analysis Results				Remarks
Sl No	Colliery/siding	Notified grade	Linked TPs	Rail	Road	Total			+1GR	Same	-1 GR	-2 GR	
	Pundi/N R SDG												
66	S Dhon dry NO 1/S Dhon CHP SDG	ROM W-IV	BTPS, PNP	689	-	689	2 5	7	-	3	-	4	F
67	S Dhon Qry No III/Tami SDG	ROM F	PNP, RTP	537	-	537	97 4	152	4	105	36	7	F
68	Amlo/Amlo SDG	ROM F	PNP, RTP	419	-	419	86 2	133	1	100	32	-	F
69	Dhon/Dhon SDG	ROM F	RTP, PNP	334	-	334	25 7	35	-	31	4	-	F
70	Khasmahal, Kan/Jarangdih PF-1 SDG	ROM E	RTP, PNP	1234	-	1234	64 6	227	-	129	91	7	F
71	Jarangdih/Jrd PF 2 Sdg	ROM W-IV	RTP, PNP	518		518	93 1	141		98	38	5	W IV
72	Gindih/CP SDG	ROM E	BTPS, PNP	46	-	46	0	-	-	-	-	-	-
73	Rajhara/Rajhara SDG	ROM E	BTI	17	-	17	35 3	3	-	3	-	-	-
74	Kargali washery, SDG, Sawang washery, Kathara washery	Middl	BTPP	951	-	951	0	-	-	-	-	-	-
1997-98													
75	Bhuraunda/BHK CHP	ROM-BLF	IP, FDB, PNP, RTP	216	-	216	94	80	0	2	30	48	DLF
76	Sauna-D Sdg	SL-CLF	IP, FDB, PNP, RTP	-	-	-	0	-	0	-	-	-	-
77	Sauna, AK, C. Saunda SDG	ROM CLF	BTI, IP, FDB,RTP, PNP	291	-	291	92 8	143	0	76	55	12	DLF
78	Saunca-B SDG	ROM BLF	BTI, IP,	38	-	38	92 1	13	0	1	7	5	CLF

CCL (Figures in thousand tonnes)

Sl. No	Colliery/siding	Notified grade	Linked TPs	Despatch			% Coverage of sampling	Samples drawn	Analysis Results				Remarks
				Rail	Road	Total			+1GR	Same	-1 GR	-2 GR	
			FDB,RTP, PNP										
79	Saunca-B SDG	ROM DLF	BTI, IP, FDB,RTP, PNP	209	-	209	78 9	111	0	21	44	46	E
80	Sayal-D/Sayal-D CHP	ROM BLF	TP PNP, FDB	131	-	131	4 9	34	0	11	12	11	CLF
81	Unman/ KKUG/C Saunda SDG	ROM-D	PNP, IP, FDB	279	-	279	100	91	0	46	41	4	E
82	Hindigir/Hindigir SDG	ROM-D	IP, PNP	110	-	110	86 4	50	0	26	21	3	E
83	Chun/Dakra CHP SDG	ROM-B	IP, FDB	6	-	6	100	2	0	1	1	0	C
84	Karketa OC/KD (OLD),	ROM-E	RTP, RGT, BTPP, HGJ, PNP, Dadn	1583	-	1583	72	312	0	160	146	6	E
85	T-Khar/KD (Old) SDG	ROM-F	RTP, RGT, BTPP, HGJ, PNP, Dadn	39	-	39	89 7	64	0	22	38	4	G
86	Chur/KDH New PFI	ROM-B	RTP, PTPS	16	-	16	56 3	34	0	1	23	10	C
87	KDHOC/KDH (N) SDG	ROM-E	Dadn, HGJ, FDB	2358	-	2358	63 5	422	0	246	169	7	E
88	Rohini/KDH New PF-2	ROM-E	BTPP, RTP,	363	-	363	64 7	65	0	32	33	0	F
89	Chun UG/KDH New PF-2 SDG	ROM-B	RGT, Dadn, PTPS	39	-	39	61 5	26	0	2	12	12	C
90	Ashoka, Dakra OC/	ROM-E	PTPS, RTP, IP	1407	-	1407	86 7	334	0	183	150	1	E
91	Dakra(MO SDG		RGT, BTPP						0				
92	Piparwar/Bachra Spur SDG	ROM-F	Dadn RTP	230	-	230	83 5	58	0	58	0	0	F
93													
94	Chun UG/Bachra CHP	ROM-BLF	IP, FDB	53	-	53	92 5	15	0	4	8	3	CLF
95	Piparwar/RCM STG	ROM-F	Dadn	1227	-	1227	56 6	183	0	166	16	1	F

CCL													(Figures in thousand tonnes)
				Despatch			% Coverage of sampling	Samples drawn	Analysis Results				Remarks
Sl No	Colliery/siding	Notified grade	Linked TPs	Rail	Road	Total			+1GR	Same	-1 GR	-2 GR	
96													
97	Piparwar/RCM STG	ROM-E	PNP	198	-	198	26 3	34	0	18	13	3	F
98	Gidi-A, Religara/Gidi-A CHP SDG	ROM CLF	FDB, IP	204	-	204	100	81	1	23	32	25	DLF
99	Gidi-A, CHP SDG	ROM CLF		2	-	2	100	1	0	1	0	0	BLF
100	Gidi-C/Gidi-C CHP SDG	ROM CLF	IP, FDB	189	-	189	96 3	71	0	44	22	5	DLF
101	Sirka/Sirka CHP SDG	ROM CLF	HGJ, IP, FDB, PNP	296	-	296	97 6	94	0	22	54	18	BLF
102	Gidi Washery/Gidi Washery CHP SDG	Middl F	BTI, IP, FDB	875	-	875	89 7	238	1	109	120	8	G
103	Gidi Washery/Gidi Washery CHP SDG	Middl F	BTI, IP, FDB	50	-	50	60	9	0	7	2	0	E
104	Rajrappa Washery/Rajrappa (W) CHP SDG	Middl F	BTI, IP, FDB	697	-	697	94 5	201	32	132	33	4	E
105	Tapin (N), Tapin (S), Parej East /Dump	ROMW/III/IV	TIPS	-	489	489	0	-	0	-	-	-	-
106	Sarubera/NR SDG	ROM WIV	IP, RGT	935	-	935	97.2	287	0	140	110	37	W-IV
107	& others,NR SDG	Middle D	FDB, PNP	177	-	177	40 7	122	0	48	63	11	E
108	Dhori/S.Dhori CHP SDG	ROM WIV	BITS	829	-	829	82	310	0	211	28	71	W-IV
109	Tarmi/Tarmi SDG	ROM WIV	PNP, RTP, PNK	445	-	415	93 3	124	0	49	22	53	E
110	Amlo/Amlo SDG	ROM-F	RTP, BTPS	573	-	573	94 2	230	7	184	39	0	F
111	Dhori/Dhori SDG	ROM-F	BTPS, PNP	352	-	352	82.4	222	8	195	19	0	F

CCL													(Figures in thousand tonnes)
				Despatch			% Coverage of sampling	Samples drawn	Analysis Results				Remarks
Sl No	Colliery/siding	Notified grade	Linked TPs	Rail	Road	Total			+1GR	Same	-1 GR	-2 GR	
112	Khasmahal/Jarungdih PF-1 SDG	ROM-E	RTP, PNP	1258	-	1258	50 9	179	0	127	51	1	E
113	Jarangdih/JarangdiH	ROM W-IV	RTP, PNP	489	-	489	96 1	139	0	100	31	8	W-IV
114	Gindih/CP 3kg	ROM-E	BTPS, PNP	164	-	164	0	-	0	-	-	-	-
115	Rajhara/Rajhara SDG	ROM-E	PNP, IP, FDB	108	-	108	82 4	41	3	16	18	4	F
116	FBC (Wash)	Middl F	BTPP	290	-	290	0	-	0	-	-	-	-
117	Kathara (W), KISW						0						

Report on the samples drawn / analysed at the loading points by Coal Controller's Organisation

ECL

(Figures in thousand tonnes)

SL NO	AREA	COLLIERY	NOTIFIED GRADE	LINKED TPS	DESPATCH			QTY SAMPLE (TE)	% COVERAGE OF SAMPLING	SAMPLE DRAWN	ANALYSIS RESULTS				REMARKS
					RAIL	ROAD	TOTAL				A GR	S GR	-1 GR	-2 GR	
1999-00															
1	S P Mines	Chitra	Rom D	MTPS/BTPS(S)/STPP	525007	11900	536907	322306	60 03	118	0	97	21	0	D
2	Mugma	Rajpura	Rom E	CESC/MTPS/NTPC	90782	85	90867	44776	49 28	27	0	26	1	0	E
3		Kumardubi	Rom C	CESC/MTPS/NTPC	26135	38044	64179	10092	15 72	20	0	15	5	0	C
4		Bermun	Rom E	CESC/MTPS/NTPC	72553	0	72553	45066	62 11	30	0	27	3	0	E
5		Khoodia	Rom C	CESC/MTPS/BTPS(S)	38219	28253	66472	5568	8 38	21	0	15	6	0	C
6		Khoodia	Rom E	CESC/MTPS	40745	0	40745	4930	12 1	10	0	8	2	0	F
7		Mandman	Rom C	CESC/BTPS(S)/MTPS	38285	8635	46920	10324	22	24	0	6	18	0	E
8		Mandman	Rom D	CESC/MTPS	22247	16148	38395	1334	3 47	6	0	6	0	0	D
9		Lakhimata	Rom C	CESC/BTPS(S)/MTPS	65545	9281	74826	14732	19 69	37	0	12	25	0	D
10		Kapasara	Rom C	CESC/MTPS	34636	6526	41162	6380	15 5	19	0	5	14	0	D
11		Nirsha	Rom D	CESC/BTPS(S)/MTPS	81905	52278	134183	9802	7 3	18	0	8	10	0	D
12		Hanazam	Rom C	BTPS	15061	45740	60801	928	1 53	2	0	2	0	0	E
13		Chapapur II	Rom C	CSEC/BPTS(S)/MTPS	86171	13528	99699	31030	31.12	53	0	50	3	0	C
14		Chapapur II	Rom D	CSEC/BPTS(S)/MTPS	52454	53879	106333	15428	14 51	32	0	31	1	0	C
15		Badjna	Rom C	CSEC/BPTS(S)/MTPS	113580	9651	123231	26100	21 18	43	0	37	6	0	D
16		Badjna	Rom D	CSEC/BPTS(S)/MTPS	15189	16357	31546	522	1 65	2	0	2	0	0	C
17	Sodepur	Parbelia	Rom B	BPTS	268624	8195	276819	119768	43 27	90	0	77	13	0	D
18		Sodepur 9/10	Rom B	BPTS	54452	3553	58006	25752	44 4	55	0	48	7	0	B
19		Sodepur 3A PIT	Rom B	BPTS	69303	4523	73825	58580	79 35	67	0	59	8	0	

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(Figures in thousand tonnes)

SL NO	AREA	COLLIERY	NOTIFIED GRADE	LINKED TPS	DESPATCH			QTY SAMPLE (TE)	% COVERAGE OF SAMPLING	SAMPLE DRAWN	ANALYSIS RESULTS				REMARKS
					RAIL	ROAD	TOTAL				A GR	S GR	-1 GR	-2 GR	
20		Chinakun 1 PIT	SC-I	IISCD/DOP	60684	0	60684	51272	84.49	38	0	38	0	0	B
21		Chinakun 2 PIT	Rom A	STPS/TNEB	49232	1806	51038	39962	78.3	30	0	30	0	0	SC-II
22		Chinakun 3 PIT	Rom B	STPS/TNEB	130195	11470	141665	71572	50.52	64	0	61	3	0	A
23		Beijdih	Rom C	STPS	104615	3722	108337	63452	58.57	124	0	108	16	0	B
24		Methani Ug	Rom B	STPS	63586	10915	74491	39456	52.97	121	0	101	20	0	C
25		Patmohana	Rom B	STPS	73899	49245	123144	50839	41.28	122	0	116	6	0	B
26		Dhemomain	Rom B	DPL	79712	13087	92799	12644	13.63	13	0	12	1	0	B
27		Dhemomain	Rom C	DPL	72750	8368	81118	11484	14.16	13	0	12	1	0	F
28	Salahpur	Gourandih	Rom E	CESC/STPS/DTPS	205769	16673	222442	187920	84.48	72	0	47	25	0	C
29		Mohanpur	Rom E	DTPS/CESC/STPP(KH)	75674	80118	155792	59798	38.38	22	0	12	10	0	D
30		Sangramgarh	Rom C	STPP	3160	37356	40516	2842	7.01	2	0	2	0	0	C
31		Bonjemehari	Rom C	STPP	20421	40364	60785	7540	12.4	9	0	8	1	0	D
32		Manoharbahal	Rom B	DTPS/CESC/STPP(KH)	35718	49113	84831	26158	30.84	12	0	5	7	0	D
33		Chakballavpur	Rom D	NFLD/NTPC	6273	43204	49477	5916	11.96	5	0	4	1	0	C
34		Dabur	Rom C	STPP	9011	116936	125947	8294	6.59	8	0	4	4	0	B
35		G Begunia	Rom C	STPP	2859	33143	36002	2726	7.57	2	0	2	0	0	B
36	Snpur	Ningha	Rom A	BTPS/TNEB/DPL	57656	6693	64349	44312	68.86	76	0	44	32	0	B
37		S S I	Rom B	BTPS/TNEB/DPL	93882	7087	100969	67106	66.46	77	0	66	11	0	C
38		Ghisick 3 PIl	Rom B	DPL/BKSC/DTPS	28374	5553	33927	20474	60.35	35	0	29	6	0	B
39		Kalipahari	Rom C	DPL/BKSC/DTPS	52928	2918	55846	31320	56.08	39	0	26	13	0	B
40		New Ghusick	Rom B	DPL/BKSC/DTPS	37723	2885	40608	28478	70.13	54	0	48	6	0	B
41		Ghusick	Rom A	DPL/BKSC	17008	426	17434	8816	50.57	24	0	19	5	0	C

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(Figures in thousand tonnes)

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					RAIL	ROAD	TOTAL				A GR	S GR	-1 GR	-2 GR	
42		Adjoy II	Rom A	BTPS/TNEB/DPL	46240	3608	49848	30770	61 73	69	0	34	35	0	B
43		K D.Incl.	Rom C	BTPS/TNEB/DPL	72398	3156	75554	53766	71 16	73	0	49	24	0	C
44		Bhanosa W Block	Rom B	BTPS/TNEB/DPL	75847	28146	103993	58045	55 82	50	0	41	9		B
45	Kunustona	Parasea Ocp	Rom B	TNEB/DPL/CESC	530657	96623	627280	331122	52 79	123	0	33	40	0	C
46		Parasea 6&7 PIT	Rom B	TNEB	38868	0	38868	5104	13 13	5	0	2	3	0	C
47		Amrasota Incl	Rom C	CESC	0	29117	29117	1740	5 98	2	0	1	1	0	D
48		Amntnagar	Rom B	BKSC/DPL/NTPC/FCI	174534	0	174534	115536	66 2	53	0	50	3		B
49		Kunustona	Rom A	TNEB/CESC	213485	0	213485	30914	14 48	15	0	12	3		B
50		Nort Searsole	Rom B	TNEB/DPL	0	159911	159911	22330	13 96	24	0	18	6		B
51		Nilron Ocp	Rom C	TNEB/CESC	NA	NA	NA	28710		23	0	16	7		D
52		Purandip	Rom C	TNEB	NA	NA	NA	812		1	0	1	0		C
53		Bansra	Rom A	TNEB	78387	31782	110169	4060	3 69	2	0	2	0		A
54	Bankola	Kumardihi A	Rom B	BTPP/TNEB/NTPC	197477	5269	202746	27608	13 62	23	0	22	1		B
55		Kumardihi B	Rom B	BTPP/TNEB/NTPC	170770	0	170770	18618	10 9	20	0	20	0		B
56		Tilaboni	Rom B	BTPP/TNEB/NTPC	186395	0	186395	20532	11 02	21	0	21	0		B
57		Bankola	Rom B	NTPC	315180	403	315583	1856	0 59	1	0	1	0		B
58		Bankola	Rom C	NTPC	258693	1349	260042	1508	0 58	1	0	1	0		C
59		Nakrakonda	Rom B	CESC/TENB/BTPP	98605	0	98605	43442	44 06	103	0	102	1		B
60	Jhanjra	Jhanjra	Rom B	BTPS/TNEB/NTPC	318700	0	318700	172550	54 14	122	0	118	4		B
61		Jhanjra	Rom C	BTPS/TNEB/NTPC	374736	0	374736	184034	49 11	132	0	125	7		C

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(Figures in thousand tonnes)

SL NO	AREA	COLLIERY	NOTIFIED GRADE	LINKED TPS	DESPATCH			QTY SAMPLE (TE)	% COVERAGE OF SAMPLING	SAMPLE DRAWN	ANALYSIS RESULTS				REMARKS
					RAIL	ROAD	TOTAL				A GR	S GR	-1 GR	-2 GR	
62	Pandaveswar	South Samla	Rom B	BTPS/TNEB/NTPC	88142	0	88142	43442	49.29	120	0	120	0		D
63		Pandaveswar	Rom B	BTPS/TNEB/NTPC	139240	26330	165570	29494	17.81	24	0	24	0		B
64		Pandaveswar	Rom C	BTPS/TNEB/NTPC	53662	104	53766	7946	14.78	18	0	18	0		C
65		Dalurband	Rom C	BTPS/TNEB/NTPC	167404	18880	186284	26912	14.45	25	0	25	0		C
66		Manderboni	Rom B	TNEB	133889	0	133889	2494	1.86	1	0	1	0		B
67		Khottadih	Rom A	KTPP/TNEB/BTPS	435245	0	435245	223528	51.36	88	0	79	9		A
68		Khottadih	Rom D	KTPP/TNEB/BTPS	321536	0	321536	155440	48.34	55	0	53	2		D
69		Khottadih Incl	Rom B	KTPP/TNEB/BTPS	69443	0	69443	6032	8.69	6	0	6	0		B
70	S B Project	B.B Project	Rom B	BTPP/TNEB/NTPC	2346815	0	2346815	1515250	64.57	564	0	351	213		C
71	Kenda	Bahula	Rom B	KTPP/TNEB/BTPS	1140451	0	1140451	554654	48.63	183	0	139	44		B
72		New Kenda	Rom B	BKSC	152190	0	152190	11330	7.44	5	0	4	1		B
73	Kajora	Khas Kajora	Rom B	CESC/BTPS	203921	25254	229175	31204	13.62	28	0	88	0		B
74		Jambad UG	Rom B	NTPC/BTPS	39594	14625	54219	31784	58.62	17	0	15	2		B
75		Jambad Ocp	Rom C	TNEB/BTPS/NTPC	152999	0	152999	124990	81.69	45	0	31	14		C
76		Madhujore 5&6	Rom A	CESC/BTPS	52092	0	52092	3074	5.9	6	0	6	0		A
77		Naba Kajora	Rom B	NTPC	224097	0	224097	4002	1.79	2	0	2	0		B
78		Madhujore	Rom B	CESC/DTPS/BTPS	52918	0	52918	1624	3.07	7	0	7	0		B
79		Madhabpur	Rom B	NTPC	183516	0	183516	2726	1.49	2	0	2	0		B
80		Madhusudanpur	Rom A	BTPS	121527	0	121527	15196	12.5	6	0	4	2		B
81		Madhusudanpu	Rom B	NTPC/CESC	83166	7093	90259	3538	3.92	2	0	2	0		B

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(Figures in thousand tonnes)

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					RAIL	ROAD	TOTAL				A GR	S GR	-1 GR	-2 GR	
		r													
82		Parascole East	Rom B	CESC/NTPC	98543	0	98543	8178	8 3	7	0	7	0		B
83		J K Nagar	Rom B	BTPP/BTPS/TNEB	210000	19684	229684	114434	49 82	94	0	90	4		B
84		Pure Searsole	ROM B	CESC/BTPP/TNEB	NA	13840	13840	20590		49	0	47	2		B
85		Satgram Project	ROM B	BTPP/BTPS/TNEB	156051	0	156051	98484	63 11	94	0	90	4		B
86		Satgram INCL	ROM B	BTPP/BTPS/TNEB	77306	0	77306	53824	69 62	88	0	84	4		B
87		Jemehari	ROM C	BTPP/BTPS/CESC	39154	0	39154	16878	43 11	41	0	41	0		C
88		Kuardih	ROM B	BTPP/BKSC/TNEB	101715	0	101715	8584	8 44	10	0	10	0		B
89		Nimcha	ROM B	BTPP/BKSC/TNEB	306587	0	306587	23838	7 78	12	0	12	0		B
90	RAJMAHAL	Rajmahal	ROM F	NTPC(F)/NTPS(KH)	8131125	0	8131125	1352502	16 63	431	0	430	1		F
91	S P MINES	Chitra	ROM D	MTPS/DTPS(S)	529723	8018	537741	472182	87 81	192	0	173	19	0	D
92	Mugma	Rajpura	ROM E	CESC/DTPS(W)	69436	88	69524	58580	84 26	63	0	49	14	0	E
93		Kumardhubi	ROM C	CESC/DTPS(W)	37495	49303	86798	29812	34 35	67	0	65	2	0	C
94		Bermun	ROM E	CESC/DTPS(W)	112059	3	112062	94366	84 21	63	0	47	16	0	E
95		Khoddia	ROM C	CESC/BTPS(S)	26209	17041	43250	3944	9 12	21	0	16	5	0	C
96		Khoddia	ROM D	CESC/BTPS(S)	25273	0	25273	5220	20 65	27	0	22	5	0	D
97		Khoddia	ROM E	CESC/BTPS(S)	17561	3	17564	10382	59 11	34	0	28	6	0	E
98		Kapasara	ROM C	CESC/BTPS(S)	40893	14785	55678	23199	41 67	51	0	33	18	0	D
99		Mandaman	ROM C	CESC/BTPS(S)	44099	15895	59994	20590	34 32	46	0	26	18	2	D
100		Mandaman	ROM D	CESC/BTPS(S)	25835	6744	32579	1682	5.16	8	0	8	0	0	D
101		Lakhimata	ROM C	CESC/BTPS(S)	90724	9743	100467	31668	31.52	59	0	34	25	0	D
102	Mugma	Chapapur II	ROM C	CESC/MTPS/BTPS	123071	4095	127166	72732	57 19	98	0	75	23	0	C

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(Figures in thousand tonnes)

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					RAIL	ROAD	TOTAL				A GR	S GR	-1 GR	-2 GR	
103		Chapapur II	ROM D	CESC/MTPS/BTPS	78238	44079	122317	44658	36 51	91	0	82	9	0	D
104		Badjna	ROM C	CESC/MTPS/BTPS	125631	6386	132017	71862	54 43	100	0	88	12	0	C
105		Badjna	ROM D	CESC/BTPS	19841	17909	37750	2842	7 53	10	0	9	1	0	D
106		Hanazam	W-IV	CESC/MTPS/BTPS	9679	28325	38004	6612	17 4	17	0	17	0	0	W-IV
107		Hanazam	W-II	MTPS/CESC	4841	14728	19569	4408	22 53	16	0	7	7	2	W-III
108		Hanazam	ROM C	CESC	2598	34713	37311	580	1 55	1	0	1	0	0	C
109		Nirsha	ROM D	CESC/BTPS(S)	73367	51056	124423	19272	15.49	49	0	27	22	0	D
110	SODEPUR	Parbelia	ROM B	STPS	291366	12018	303384	281938	92 93	217	0	216	1	0	B
111		Sodepur 9/10	ROM B	STPS	60091	4211	64302	55158	85 78	148	0	143	5	0	B
112		Sodepur 3A PIT	ROM B	STPS	115115	5359	120474	116812	96 96	150	0	141	9	0	B
113		Chinakuri 1 PIT	SC-1	IISCO/DCOP	76611	0	76611	73660	96 15	59	0	58	1	0	SC I
114		Chinakuri 2 PIT	ROM A	STPS	38123	1868	39991	37642	94 13	28	0	27	1	0	A
115		Chinakuri 3 PIT	ROM B	STPS	150612	17922	168534	113390	67 28	89	0	89	0	0	B
116		Poidih	ROM C	STPS	NA	8410	8410	27278		94	0	80	14	0	C
117		Beijdih	ROM C	STPS	84886	6303	91189	80098	87 84	183	0	169	14	0	C
118		Methani UG	ROM B	STPS	51655	5146	56801	42983	75 67	180	0	170	10	0	B
119		Patmohana	ROM B	STPS	115181	18576	133757	78722	58 85	183	0	178	5	0	B
120		Dhemomain	ROM B	DPL/MTPS/RSP	61257	8477	69734	42594	61 08	51	0	47	4	0	B
121		Dhemomain	ROM C	DPL/MTPS/RSP	76926	888	77814	59290	76 19	51	0	40	11	0	C
122	SALANPUR	Mohanpur	ROM E	DTPS/CESC	137106	61	137167	124526	90 78	56	0	14	42	0	F
123		Mandharbahal	ROM B	DTPS/TNEB	38791	19109	57900	36424	62 91	26	0	12	14	0	C
124		Dabor	ROM C	DTPS/TNEB	10805	113577	124382	10092	8 11	11	0	7	4	0	D

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(Figures in thousand tonnes)

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					RAIL	ROAD	TOTAL				A GR	S GR	-1 GR	-2 GR	
125		Sangramgarh	ROM C	TNEB	6069	21731	27800	5800	20.86	8	0	2	6	0	D
126		Sangramgarh	ROM D	CESC	273	0	273	273	100	1	0	1	0	0	E
127		Bonjemahan	ROM C	DTPS/TNEB/BTPS	36624	63578	100202	33930	33.86	58	0	17	38	3	D
128		Gourandih	ROM E	DTPS/CESC	148984	969	149953	140882	93.95	74	0	27	47	0	F
129		Chakballavpur	ROM C	TNEB/BTPS(M)	NA	NA	NA	1334		3	0	3	0	0	E
130		Chakballavpur	ROM D	TNEB/BTPS(M)	11636	26198	37834	9628	25.45	12	0	10	2	0	D
131		Kholrabad	ROM D	DTPS/CESC/TNEB	30777	25358	56135	27434	48.87	38	0	7	27	4	E
132	SRIPUR	Wingha	ROM A	BKSC/BTPS/TNEB	51938	13667	65605	48365	73.72	65	0	57	8	0	A
133		S S I	ROM B	BKSC/BTPS/TNEB	66861	4412	71273	63396	88.95	81	0	58	22	1	B
134		Ghusick 3 PIT	ROM B	DPL/BKSP	28127	10266	38393	25694	66.92	37	0	34	3	0	B
135		Kalipahan	ROM C	DPL/BKSP	28127	18448	46575	22788	48.93	37	0	30	7	0	C
136		New Ghusick	ROM B	DPL/BKSP	20621	5105	25726	21323	82.89	35	0	31	4	0	B
137		G. Muslia	ROM A	DPL/BKSP/BTPS	14276	1757	16033	13804	86.1	35	0	32	3	0	A
138		Adjoy II	ROM A	TNEB/DPL/BTPS	32939	5313	38252	28572	74.69	62	0	53	9	0	A
139		K D INCL	ROM C	TNEB/DPL/BTPS	53717	13399	67116	54504	81.21	67	0	37	29	1	D
140		Bhandara W Block	ROM B	CESC/DPL	0	3413	34513	3538	10.25	11	0	10	1	0	B
141	Kunustoria	Parasea DCP	ROM B	TNEB/DPL/CESC	342244	61346	403590	282750	70.06	143	0	124	19	0	B
142		Amrasota INCL	ROM C	TNEB/CESC	0	27955	27955	12528	44.81	14	0	14	0	0	C
143		Amritnagar	ROM B	DPL/TNEB/BTPP	131875	0	131875	115240	87.39	66	0	56	10	0	B
144		TDPSI	ROM B	TNEB/BTPS	NA	860	860	25692		31	0	22	9	0	B
145		BANSRA	ROM A	TNEB/DPL/CESC	33383	16327	49710	83582	67.56	65	0	52	13	0	A

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(Figures in thousand tonnes)

SL NO	AREA	COLLIERY	NOTIFIED GRADE	LINKED TPS	DESPATCH			QTY SAMPLE (TE)	% COVERAGE OF SAMPLING	SAMPLE DRAWN	ANALYSIS RESULTS				REMARKS
					RAIL	ROAD	TOTAL				A GR	S GR	-1 GR	-2 GR	
146		BANSRA	ROM C	TNEB/DPL/BTPS	108520	20642	129162	107474	83 21	85	0	75	10	0	C
147		N Searsole	ROM B	TNEB/CESC/DPL	0	133463	133463	39556	29 64	31	0	29	2	0	B
148		Belbaid	ROM B	TNEB/CESC	106207	0	106207	2030	1 91	10	0	10	0	0	B
149		Purandip	ROM C	CESC/TNEB	NA	NA	NA	6148		8	0	8	0	0	C
150		Nilban	ROM C	TNEB/CESC	NA	NA	NA	9512		9	0	5	4	0	C
151	S P BAZARI	S P BAZARI	ROM B	BTPP/KTPP/TNEB	2097389	0	2097389	1413640	67 4	617	0	461	156	0	B
152	KENDA	Bahula	ROM B	KTPP/TNEB/BTPS	949689	0	949689	707773	74 53	209	0	155	53	1	B
153		New Kenda	ROM B	CESC/DPL/RSP	161961	0	161961	86826	53 61	43	0	34	8	1	B
154	BANKOLA	Sankarpur OCP	ROM C	DPL/DTPS	74621	6770	81391	20822	25 58	18	0	12	6	0	C
155		MOIRA	ROM B	DPL	319048	4000	323048	3480	1 08	4	0	4	0	0	B
156		Kumardih A	ROM B	BTPS(M)/TNEB/DPL	180307	10937	191244	47386	24 78	54	0	54	0	0	B
157		Kumardih B	ROM B	BTPS(M)/TNEB/DPL	157727	0	157727	39104	24 79	54	0	54	0	0	B
158		Kumardih A	ROM C	BTPS	18680	0	18680	348	1 86	1	0	1	0	0	C
159		Tilaboni	ROM B	BTPS(M)/TNEB/DPL	209204	0	209204	66874	31 97	54	0	52	2	0	B
160		Nakrakonda	ROM B	CESC/TNEB/KTPP	107882	0	107882	86100	79 81	287	0	286	1	0	B
161		Bankola	ROM B	DTPS/TNEB	220677	0	220677	5220	2 37	3	0	3	0	0	B
162		Bankola	ROM C	CESC	224164	3151	227315	6788	2 96	3	0	3	0	0	C
163	JHANJRA	Jhanjra	ROM B	CESC/TNEB/KTPP	300324	0	300324	266336	88 68	249	0	227	22	0	B
164		Jhanjra	ROM C	CESC/TNEB/KTPP	881319	0	881319	785864	89 17	373	0	351	22	0	C
165	PANDAVESWAR	Pandaveswar	ROM B	CESC/BTPP/TNEB	156683	742	157425	88682	56 33	118	0	110	8	0	B
166		Pandaveswar	ROM C	DTPS/TNEB/DPL	30576	1896	32472	18444	56 8	69	0	67	2	0	C

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(Figures in thousand tonnes)

SL NO	AREA	COLLIERY	NOTIFIED GRADE	LINKED TPS	DESPATCH			QTY SAMPLE (TE)	% COVERAGE OF SAMPLING	SAMPLE DRAWN	ANALYSIS RESULTS				REMARKS
					RAIL	ROAD	TOTAL				A GR	S GR	-1 GR	-2 GR	
167		Dalurband OCP	ROM C	CESC/BTPP/TNEB	174378	42666	217044	111012	51 15	134	0	127	7	0	C
168		Mandarboni	ROM B	DPL	123318	0	123318	4060	3 29	2	0	2	0	0	B
169		Madhaipur	ROM B	CESC	145755	0	145755	1392	0 96	1	0	1	0	0	B
170		SAMLA	ROM B	TNEB/DPL	NA	NA	NA	986		1	0	1	0	0	B
171		South Samla	ROM B	CESC/TNEB/KTPP	81653	0	81653	60204	73 73	255	0	255	0	0	B
172		Khottadih	ROM A	TNEB/BTPP/BTPS	411717	0	411717	345332	83 88	119	0	103	16	0	A
173		Khottadih	ROM D	TNEB/BTBB/BTPS	234522	0	234522	191469	81 64	118	0	107	11	0	D
174		Jambad OCP	ROM B	KTPP/BTPS/TNEB	125063	7367	132430	65714	49 62	25	0	14	10	1	C
175		Jambad	ROM C	TNEB/BTPS	NA	NA	NA	51620		18	0	8	8	2	C
176		Madhabpur	ROM B	CESC/TNEB	238785	0	238785	16588	6 95	10	0	10	0	0	B
177		Khas Kajora	ROM B	CESC/BTPS/BTPP	209694	0	209694	76618	36 54	63	0	63	0	0	B
178		Naba Kajora	ROM B	CESC/TNEB	222376	0	222376	14616	6 57	12	0	12	0	0	B
179		Madhujore	ROM B	BTPS/CESC	41545	0	41545	2320	5 58	11	0	10	1	0	B
180		Madhujore 5/6PIT	ROM A	CESC/BTPS	62456	0	62456	4350	6 96	11	0	11	0	0	A
181		Parascole	ROM B	CESC/TNEB/BTPP	119121	0	119121	29426	24 7	23	0	22	1	0	B
182		Madhusudanpur	ROM A	CESC/BTPS	118269	0	118269	9454	7 99	10	0	10	0	0	A
183		Madhusudanpur	ROM B	CESC	86713	0	86713	4118	4 75	6	0	6	0	0	B
184	SATGRAM	Kuardih	ROM B	BTPS/BTPP/BKSC	119668	0	119668	21808	18.22	29	0	27	2	0	B
185		Nimcha	ROM B	BTPS/BTPP/BKSC	292670	0	292670	54810	18.73	32	0	32	0	0	B

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(Figures in thousand tonnes)

SL NO	AREA	COLLIERY	NOTIFIED GRADE	LINKED TPS	DESPATCH			QTY SAMPLE (TE)	% COVERAGE OF SAMPLING	SAMPLE DRAWN	ANALYSIS RESULTS				REMARKS
					RAIL	ROAD	TOTAL				A GR	S GR	-1 GR	-2 GR	
186		J K Nagar	ROM B	BTPP/BTPS/TNEB	164867	17746	182613	128706	70 48	128	0	125	3	0	B
187		M Satgram	ROM B	BTPP/BTPS/TNEB	NA	NA	NA	25970		78	0	77	1	0	B
188		M Satgram	ROM C	DPL/CESC/BTPS	NA	NA	NA	30782		77	0	77	0	0	C
189		M Satgram	ROM B	DPL/CESC/DTPS	NA	NA	NA	70112		82	0	80	2	0	B
190		Jemehari	ROM C	BTPP/BTPS/TNEB	37206	0	37206	3008	8 08	9	0	9	0	0	C
191		Satgram Project	ROM B	DPL/TNEB/CESC	107355	1324	108679	36482	33 57	34	0	34	0	0	B
192		Satgram-R	ROM B	DPL/RTPP/TNEB	NA	NA	NA	23606		25	0	25	0	0	B
193		SATGRAM INCL	ROM B	BTPS/TNEB/BTPP	62009	0	62009	12238	19.74	22	0	22	0	0	B
194		Pure Searsole	ROM B	BTPS/TNEB/RTPP	NA	704	704	2842		17	0	17	0	0	B
195	RAJMAHAL	Rajmahal	ROM F	NTPC(F)/NTPS(KH)	8270932	0	8270932	973530	11 77	370	0	352	18	0	F
1998-99															
196	S P MINES	Chitra	ROM D	MTPS/DTPS(S)	529723	8018	537741	472182	87 81	192	0	173	19	0	D
197	Mugma	Rajpura	ROM E	CESC/DTPS(W)	69436	88	69524	58580	84 26	63	0	49	14	0	E
198		Kumardhubi	ROM C	CESC/DTPS(W)	37495	49303	86798	29812	34 35	67	0	65	2	0	C
199		Bermun	ROM E	CESC/DTPS(W)	112059	3	112062	94366	84 21	63	0	47	16	0	E
200		Khoddia	ROM C	CESC/BTPS(S)	26209	17041	43250	3944	9 12	21	0	16	5	0	C
201		Khoddia	ROM D	CESC/BTPS(S)	25273	0	25273	5220	20 65	27	0	22	5	0	D
202		Khoddia	ROM E	CESC/BTPS(S)	17561	3	17564	10382	59 11	34	0	28	6	0	E
203		Kapasara	ROM C	CESC/BTPS(S)	40893	14785	55678	23199	41 67	51	0	33	18	0	D
204		Mandaman	ROM C	CESC/BTPS(S)	44099	15895	59994	20590	34 32	46	0	26	18	2	D
205		Mandaman	ROM D	CESC/BTPS(S)	25835	6744	32579	1682	5 16	8	0	8	0	0	D
206		Lakhimata	ROM C	CESC/BTPS(S)	90724	9743	100467	31668	31 52	59	0	34	25	0	D

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(Figures in thousand tonnes)

SL NO	AREA	COLLIERY	NOTIFIED GRADE	LINKED TPS	DESPATCH			QTY SAMPLE (TE)	% COVERAGE OF SAMPLING	SAMPLE DRAWN	ANALYSIS RESULTS				REMARKS
					RAIL	ROAD	TOTAL				A GR	S.GR	-1 GR	-2 GR	
207	Mugma	Chapapur II	ROM C	CESC/MTPS/BTPS	123071	4095	127166	72732	57 19	98	0	75	23	0	C
208		Chapapur II	ROM D	CESC/MTPS/BTPS	78238	44079	122317	44658	36 51	91	0	82	9	0	D
209		Badjna	ROM C	CESC/MTPS/BTPS	125631	6386	132017	71862	54 43	100	0	88	12	0	C
210		Badjna	ROM D	CESC/BTPS	19841	17909	37750	2842	7 53	10	0	9	1	0	D
211		Hanazam	W-IV	CESC/MTPS/BTPS	9679	28325	38004	6612	17 4	17	0	17	0	0	W-IV
212		Hanazam	W-II	MTPS/CESC	4841	14728	19569	4408	22 53	16	0	7	7	2	W-III
213		Hanazam	ROM C	CESC	2598	34713	37311	580	1 55	1	0	1	0	0	C
214		Nirsha	ROM D	CESC/BTPS(S)	73367	51056	124423	19272	15 49	49	0	27	22	0	D
215	SODEPUR	Parbelia	ROM B	STPS	291366	12018	303384	281938	92 93	217	0	216	1	0	B
216		Sodepur 9/10	ROM B	STPS	60091	4211	64302	55158	85 78	148	0	143	5	0	B
217		Sodepur 3A PIT	ROM B	STPS	115115	5359	120474	116812	96 96	150	0	141	9	0	B
218		Chinakun 1 PIT	SC-1	IISCO/DCOP	76611	0	76611	73660	96.15	59	0	58	1	0	SC I
219		Chinakun 2 PIT	ROM A	STPS	38123	1868	39991	37642	94 13	28	0	27	1	0	A
220		Chinakun 3 PIT	ROM B	STPS	150612	17922	168534	113390	67 28	89	0	89	0	0	B
221		Poidih	ROM C	STPS	NA	8410	8410	27278		94	0	80	14	0	C
222		Beijdih	ROM C	STPS	84886	6303	91189	80098	87 84	183	0	169	14	0	C
223		Methani UG	ROM B	STPS	51655	5146	56801	42983	75 67	180	0	170	10	0	B
224		Patmohana	ROM B	STPS	115181	18576	133757	78722	58 85	183	0	178	5	0	B
225		Dhemomain	ROM B	DPL/MTPS/RSP	61257	8477	69734	42594	61 08	51	0	47	4	0	B
226		Dhemomain	ROM C	DPL/MTPS/RSP	76926	888	77814	59290	76 19	51	0	40	11	0	C
227	SALANPUR	Mohanpur	ROM E	DTPS/CESC	137106	61	137167	124526	90 78	56	0	14	42	0	F
228		Mandharbahal	ROM B	DTPS/TNEB	38791	19109	57900	36424	62 91	26	0	12	14	0	C

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(Figures in thousand tonnes)

SL NO	AREA	COLLIERY	NOTIFIED GRADE	LINKED TPS	DESPATCH			QTY SAMPLE (TE)	% COVERAGE OF SAMPLING	SAMPLE DRAWN	ANALYSIS RESULTS				REMARKS
					RAIL	ROAD	TOTAL				A GR	S GR	-1 GR	-2 GR	
229		Dabor	ROM C	DTPS/TNEB	10805	113577	124382	10092	8 11	11	0	7	4	0	D
230		Sangramgarh	ROM C	TNEB	6069	21731	27800	5800	20 86	8	0	2	6	0	D
231		Sangramgarh	ROM D	CESC	273	0	273	273	100	1	0	1	0	0	E
232		Bonjemahari	ROM C	DTPS/TNEB/BTPS	36624	63578	100202	33930	33 86	58	0	17	38	3	D
233		Gourandih	ROM E	DTPS/CESC	148984	969	149953	140882	93 95	74	0	27	47	0	F
234		Chakballavpur	ROM C	TNEB/BTPS(M)	NA	NA	NA	1334		3	0	3	0	0	E
235		Chakballavpur	ROM D	TNEB/BTPS(M)	11636	26198	37834	9628	25 45	12	0	10	2	0	D
236		Khoirabad	ROM D	DTPS/CESC/TNEB	30777	25358	56135	27434	48 87	38	0	7	27	4	E
237	SRIPUR	Wingha	ROM A	BKSC/BTPS/TNEB	51938	13667	65605	48365	73 72	65	0	57	8	0	A
238		S S I	ROM B	BKSC/BTPS/TNEB	66861	4412	71273	63396	88 95	81	0	58	22	1	B
239		Ghusick 3 PIT	ROM B	DPL/BKSP	28127	10266	38393	25694	66 92	37	0	34	3	0	B
240		Kalipahari	ROM C	DPL/BKSP	28127	18448	46575	22788	48 93	37	0	30	7	0	C
241		New Ghusick	ROM B	DPL/BKSP	20621	5105	25726	21323	82 89	35	0	31	4	0	B
242		G Muslia	ROM A	DPL/BKSP/BTPS	14276	1757	16033	13804	86 1	35	0	32	3	0	A
243		Adjoy II	ROM A	TNEB/DPL/BTPS	32939	5313	38252	28572	74 69	62	0	53	9	0	A
244		K D INCL	ROM C	TNEB/DPL/BTPS	53717	13399	67116	54504	81 21	67	0	37	29	1	D
245		Bhandara W Block	ROM B	CESC/DPL	0	3413	34513	3538	10 25	11	0	10	1	0	B
246	Kunustona	Parasea DCP	ROM B	TNEB/DPL/CESC	342244	61346	403590	282750	70 06	143	0	124	19	0	B
247		Amrasota INCL	ROM C	TNEB/CESC	0	27955	27955	12528	44 81	14	0	14	0	0	C
248		Amntnagar	ROM B	DPL/TNEB/BTPP	131875	0	131875	115240	87 39	66	0	56	10	0	B
249		TDPSI	ROM B	TNEB/BTPS	NA	860	860	25692		31	0	22	9	0	B

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(Figures in thousand tonnes)

SL NO	AREA	COLLIERY	NOTIFIED GRADE	LINKED TPS	DESPATCH			QTY SAMPLE (TE)	% COVERAGE OF SAMPLING	SAMPLE DRAWN	ANALYSIS RESULTS				REMARKS
					RAIL	ROAD	TOTAL				A GR	S GR	-1 GR	-2 GR	
250		BANSRA	ROM A	TNEB/DPL/CESC	33383	16327	49710	83582	67 56	65	0	52	13	0	A
251		BANSRA	ROM C	TNEB/DPL/BTPS	108520	20642	129162	107474	83 21	85	0	75	10	0	C
252		N Searsole	ROM B	TNEB/CESC/DPL	0	133463	133463	39556	29 64	31	0	29	2	0	B
253		Belbaid	ROM B	TNEB/CESC	106207	0	106207	2030	1 91	10	0	10	0	0	B
254		Purandip	ROM C	CESC/TNEB	NA	NA	NA	6148		8	0	8	0	0	C
255		Nilban	ROM C	TNEB/CESC	NA	NA	NA	9512		9	0	5	4	0	C
256	S P BAZARI	S P BAZARI	ROM B	BTPP/KTPP/TNEB	2097389	0	2097389	1413640	67 4	617	0	461	156	0	B
257	KENDA	Bahula	ROM B	KTPP/TNEB/BTPS	949689	0	949689	707773	74 53	209	0	155	53	1	B
258		New Kenda	ROM B	CESC/DPL/RSP	161961	0	161961	86826	53 61	43	0	34	8	1	B
259	BANKOLA	Sankarpur OCP	ROM C	DPL/DTPS	74621	6770	81391	20822	25 58	18	0	12	6	0	C
260		MOIRA	ROM B	DPL	319048	4000	323048	3480	1 08	4	0	4	0	0	B
261		Kumardih A	ROM B	BTPS(M)/TNEB/DPL	180307	10937	191244	47386	24 78	54	0	54	0	0	B
262		Kumardih B	ROM B	BTPS(M)/TNEB/DPL	157727	0	157727	39104	24 79	54	0	54	0	0	B
263		Kumardih A	ROM C	BTPS	18680	0	18680	348	1 86	1	0	1	0	0	C
264		Tilaboni	ROM B	BTPS(M)/TNEB/DPL	209204	0	209204	66874	31 97	54	0	52	2	0	B
265		Nakrakonda	ROM B	CESC/TNEB/KTPP	107882	0	107882	86100	79 81	287	0	286	1	0	B
266		Bankola	ROM B	DTPS/TNEB	220677	0	220677	5220	2 37	3	0	3	0	0	B
267		Bankola	ROM C	CESC	224164	3151	227315	6788	2 96	3	0	3	0	0	C
268	JHANJRA	Jhanjra	ROM B	CESC/TNEB/KTPP	300324	0	300324	266336	88.68	249	0	227	22	0	B
269		Jhanjra	ROM C	CESC/TNEB/KTPP	881319	0	881319	785864	89 17	373	0	351	22	0	C
270	PANDAVESWAR	Pandaveswar	ROM B	CESC/BTPP/TNEB	156683	742	157425	88682	56 33	118	0	110	8	0	B

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(Figures in thousand tonnes)

SL NO	AREA	COLLIERY	NOTIFIED GRADE	LINKED TPS	DESPATCH			QTY SAMPLE (TE)	% COVERAGE OF SAMPLING	SAMPLE DRAWN	ANALYSIS RESULTS				REMARKS
					RAIL	ROAD	TOTAL				A GR	S GR	-1 GR	-2 GR	
271		Pandaveswar	ROM C	DTPS/TNEB/DPL	30576	1896	32472	18444	56 8	69	0	67	2	0	C
272		Dalurband OCP	ROM C	CESC/BTPP/TNEB	174378	42666	217044	111012	51 15	134	0	127	7	0	C
273		Mandarboni	ROM B	DPL	123318	0	123318	4060	3 29	2	0	2	0	0	B
274		Madhaipur	ROM B	CESC	145755	0	145755	1392	0 96	1	0	1	0	0	B
275		SAMLA	ROM B	TNEB/DPL	NA	NA	NA	986		1	0	1	0	0	B
276		South Samla	ROM B	CESC/TNEB/KTPP	81653	0	81653	60204	73 73	255	0	255	0	0	B
277		Khottadih	ROM A	TNEB/BTPP/BTPS	411717	0	411717	345332	83 88	119	0	103	16	0	A
278		Khottadih	ROM D	TNEB/BTBB/BTPS	234522	0	234522	191469	81 64	118	0	107	11	0	D
279		Jambad OCP	ROM B	KTPP/BTPS/TNEB	125063	7367	132430	65714	49 62	25	0	14	10	1	C
280		Jambad	ROM C	TNEB/BTPS	NA	NA	NA	51620		18	0	8	8	2	C
281		Madhabpur	ROM B	CESC/TNEB	238785	0	238785	16588	6 95	10	0	10	0	0	B
282		Khas Kajora	ROM B	CESC/BTPS/BTPP	209694	0	209694	76618	36 54	63	0	63	0	0	B
283		Naba Kajora	ROM B	CESC/TNEB	222376	0	222376	14616	6 57	12	0	12	0	0	B
284		Madhujore	ROM B	BTPS/CESC	41545	0	41545	2320	5 58	11	0	10	1	0	B
285		Madhujore 5/6PIT	ROM A	CESC/BTPS	62456	0	62456	4350	6 96	11	0	11	0	0	A
286		Parascole	ROM B	CESC/TNEB/BTPP	119121	0	119121	29426	24 7	23	0	22	1	0	B
287		Madhusudanpur	ROM A	CESC/BTPS	118269	0	118269	9454	7 99	10	0	10	0	0	A
288		Madhusudanpur	ROM B	CESC	86713	0	86713	4118	4 75	6	0	6	0	0	B
289	SATGRAM	Kuardih	ROM B	BTPS/BTPP/BKSC	119668	0	119668	21808	18 22	29	0	27	2	0	B

(Figures in thousand tonnes)

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SL NO	AREA	COLLIERY	NOTIFIED GRADE	LINKED TPS	DESPATCH			QTY SAMPLE (TE)	% COVERAGE OF SAMPLING	SAMPLE DRAWN	ANALYSIS RESULTS				REMARKS
					RAIL	ROAD	TOTAL				A GR	S GR	-1 GR	-2 GR	
290		Nimcha	ROM B	BTPS/BTPP/BKSC	292670	0	292670	54810	18 73	32	0	32	0	0	B
291		J K Nagar	ROM B	BTPP/BTPS/TNEB	164867	17746	182613	128706	70 48	128	0	125	3	0	B
292		M Satgram	ROM B	BTPP/BTPS/TNEB	NA	NA	NA	25970		78	0	77	1	0	B
293		M Satgram	ROM C	DPL/CESC/BTPS	NA	NA	NA	30782		77	0	77	0	0	C
294		M Satgram	ROM B	DPL/CESC/DTPS	NA	NA	NA	70112		82	0	80	2	0	B
295		Jemehan	ROM C	BTPP/BTPS/TNEB	37206	0	37206	3008	8 08	9	0	9	0	0	C
296		Satgram Project	ROM B	DPL/TNEB/CESC	107355	1324	108679	36482	33 57	34	0	34	0	0	B
297		Satgram-R	ROM B	DPL/RTPP/TNEB	NA	NA	NA	23606		25	0	25	0	0	B
298		SATGRAM INCL	ROM B	BTPS/TNEB/BTPP	62009	0	62009	12238	19 74	22	0	22	0	0	B
299		Pure Searsole	ROM B	BTPS/TNEB/RTPP	NA	704	704	2842		17	0	17	0	0	B
300	RAJMAHAL	Rajmahal	ROM F	NTPC(F)/NTPS(KH)	8270932	0	8270932	973530	11 77	370	0	352	18	0	F
1997-98															
301	S P MINES	CHITRA	ROM D	RTPS/TNEB/MTPS	538067	0	538067	516026	95 90	182	1	105	70	6	E
302	MUGMA	RAJPURA	ROM E	RTPS/TNEB/NFL	260660	85	260745	202246	77 56	113	1	79	31	2	F
303		KUMARDHUBI	ROM C	RTPS/TNEB/NFL	59670	1768	61438	50634	82 41	111	0	79	30	2	D
304		BERMURI	ROM E	RTPS/TNEB/NFL	117512	0	117512	93496	79 56	110	2	63	42	3	F
305		KHOODIA	ROM C	RTPS/BTPS (M)/TNEB	18747	14960	33707	3132	9 29	51	0	28	19	4	D
306		KHOODIA	ROM D	RTPS/BTPS (M)/TNEB	23051	288	23339	11310	48 46	57	0	49	8	0	D
307		KHOODIA	ROM E	RTPS/BTPS (M)/TNEB	46454	0	46454	32480	69.92	67	1	56	10	0	E
308		KAPASARA	ROM C	RTPS/BTPS (M)/TNEB	53191	0	53191	25452	47 85	63	0	22	32	9	D
309		MANDAMAN	ROM C	RTPS/BTPS (M)/TNEB	42564	457	43021	17578	40 86	59	0	23	35	1	D
310		MANDAMAN	ROM D	RTPS/BTPS (M)/TNEB	25508	3660	29168	11891	40 77	34	0	19	14	1	E

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(Figures in thousand tonnes)

SL NO	AREA	COLLIERY	NOTIFIED GRADE	LINKED TPS	DESPATCH			QTY SAMPLE (TE)	% COVERAGE OF SAMPLING	SAMPLE DRAWN	ANALYSIS RESULTS				REMARKS
					RAIL	ROAD	TOTAL				A GR	S GR	-1 GR	-2 GR	
311		LAKHIMATA	ROM C	RTPS/BTPS (M)/TNEB	110376	0	110376	47734	43 25	93	0	44	46	3	D
312		CHAPAPUR II	ROM C	RTPS/BTPS (M)/TNEB	87539	21520	109059	27434	25 16	70	0	41	27	2	D
313		CHAPAPUR II	ROM D	RTPS/TNEB/BTPS (M)	131789	8455	140244	78764	56 16	101	0	66	35	0	E
314		BADJNA	ROM C	RTPS/TNEB/BTPS (M)	120710	9289	129999	58812	45 24	103	0	75	28	0	C
315		BADJNA	ROM D	RTPS/TNEB/BTPS (M)	26707	1775	28482	14316	50 26	46	1	38	7	0	D
316		NIRSHA	ROM D	RTPS/TNEB/BTPS (M)	84084	44650	128734	48140	37 39	82	1	46	27	8	E
317		HARIAJAM	W-IV	RTPS/TNEB/BTPS (M)	14116	27518	41634	4930	11 84	18	0	17	1	0	W-IV
318		HARIAJAM	W-II	BTPS (M)/DTPS(W)	4733	34084	38817	3944	10 16	10	0	2	4	4	W-IV
319	SODEPUR	PARBELIA	ROM B	STPS	219354	14899	234253	213672	91 21	168	0	163	5	0	B
320		SODEPUR 9/10	ROM B	STPS/MURI/IISCO	82322	0	82322	79170	96 17	156	0	123	33	0	B
321		SODEPUR 3A PIT	ROM B	STPS/MURI/IISCO	123484	0	123484	114898	93 05	158	0	126	32	0	B
322		CHINAKURI 1 PIT	SC-1	IISCD/DCOP	84219	0	84219	81534	96 81	72	0	64	8	0	
323		CHINAKURI 2 PIT	ROM A	DSP/STPS	61830	7334	69164	50866	73 54	39	0	35	4	0	A
324		CHINAKURI 3 PIT	ROM B	STPS/MURI/IISCO	155015	25790	180805	124584	68 91	100	0	98	2	0	B
325		POIDIH	ROM C	STPS/RSP/BSP	0	12340	12340	11260	91 25	43	0	29	14	0	C
326		BEIJDIH	ROM C	STPS/RSP/BSP	92245	0	92245	90088	97 66	186	2	162	22	0	C
327		METHANI UG	ROM B	STPS/RSP/BSP	46931	1484	48415	40020	82 66	180	0	163	17	0	B
328		METHANI OC	ROM B	STPS/MURI	NA	NA	NA	6264		22	0	12	9	1	C

ECL

(Figures in thousand tonnes)

SL NO	AREA	COLLIERY	NOTIFIED GRADE	LINKED TPS	DESPATCH			QTY SAMPLE (TE)	% COVERAGE OF SAMPLING	SAMPLE DRAWN	ANALYSIS RESULTS				REMARKS
					RAIL	ROAD	TOTAL				A GR	S GR	-1 GR	-2 GR	
329		PATMOHANA	ROM B	STPS/RSP/BSP	108695	22133	130828	104400	79 80	185	0	168	17	0	B
330		DHEMOMAIN	ROM B	DTPS/CESC/DPL	75784	0	75784	40304	53 18	49	0	49	0	0	B
331		DHEMOMAIN	ROM C	DTPS/CESC/DPL	105434	0	105434	38048	36 09	49	0	27	22	0	D
332	SALANPUR	CHALKBALLAVPUR	ROM C	DTPS/CESC/DPL	9928	1840	11768	8743	74 29	44	0	5	23	16	E
333		MOHANPUR	ROM E	TNEB/BTPS (M)/CESC	212640	214	212854	201956	94 88	85	0	37	40	8	F
334		GOURANDIH	ROM E	TNEB/RTPS	238530	1580	240110	214078	89 16	87	0	41	41	5	F
335		BONJEMEHARI	ROM C	TNEB/RTPS	82045	36930	118975	72442	60 89	73	0	45	26	2	D
336		SANGRAMGARH	ROM C	TNEB	7069	27127	34196	34196	100 00	13	0	4	6	3	E
337		SANGRAMGARH	ROM D	TNEB	63775	1919	65694	16240	24 72	8	0	0	6	2	F
338		DABOR	ROM D	TNEB	30121	66770	96891	23316	24 06	13	0	5	4	4	D
339	SRIPUR	NINGHA	ROM C	DPL/IISCO/CESC	60688	9533	70221	47850	68 14	91	0	74	17	0	B
340		S S I	ROM A	DPL/IISCO/DTPS	77913	14859	92772	61248	66 02	90	0	65	23	2	B
341		SRIPUR	ROM B	DPL/IISCO	14895	360	15255	8758	57 41	27	0	24	3	0	A
342		ADJDY II	ROM A	BSP/DPL/DTPS	29271	6961	36232	21576	59 55	63	0	60	2	1	A
343		K.D.INCL.	ROM A	DPL/IISCO	53881	9917	63798	45522	71 35	81	0	64	17	0	C
344		GHUSIC	ROM C	RSP	NA	NA	NA	406		1	0	1	0	0	B
345		G MUSLIA	ROM B	IISCO/RSP	14393	4723	19116	12846	67 20	40	0	34	6	0	B
346		NEW GHUSIC	ROM A	IISCO/RSP	20625	4960	25585	16036	62 68	39	3	25	9	2	B
347		KALIPAHARI	ROM B	IISCO/IISCO/BSP	47975	16301	64276	36250	56 40	43	2	36	5	0	C
348		K.P. (GH 3 UNIT)	ROM C	BSP/IISCO	17894	2807	20701	13456	65.00	28	0	26	2	0	C
349		DAMRA	ROM B	RSP	2288	1627	3915	1624	41 48	6	0	5	1	0	C

ECL

(Figures in thousand tonnes)

SL NO	AREA	COLLIERY	NOTIFIED GRADE	LINKED TPS	DESPATCH			QTY SAMPLE (TE)	% COVERAGE OF SAMPLING	SAMPLE DRAWN	ANALYSIS RESULTS				REMARKS
					RAIL	ROAD	TOTAL				A GR	S GR	-1 GR	-2 GR	
350		JAMURIA	ROM C	DPL/IISCO	4265	0	4265	4118	96 55	16	0	2	5	9	C
351		BHANDRA	ROM B	DPL	918	1133	2051	928	45 25	1	0	1	0	0	SC-I
352	KUNUSTORIA	PARASEA OCP	SC-1	TNEB/DPL	530719	72664	603383	463942	76 89	212	0	130	81	1	C
353		AMRITNAGAR	ROM B	IISCO/BSP/RSP	209889	0	209889	150336	71 63	75	1	69	4	1	B
354		AMRASOTA	ROM B	DPL/TNEB	NA	2880	2880	36455		27	1	24	2	0	C
355		BANSRA OCP	ROM C	TNEB/DPL	135454	578	136032	135952	99 94	91	1	78	12	0	C
356		BANSRA	ROM C	IISCO/BSP	112050	28808	140858	2204	1 56	2	0	2	0	0	A
357		NORTH SEARSOLE	ROM B	RSP/BSP	7231	168475	175706	15486	8 81	10	0	8	2	0	B
358		TOPSI	ROM B	IISCO/DPL	NA	4699	4699	5429		7	0	6	1	0	D
359		SANKARPUR OCP	ROM C	KTPP/BTPS (M)/TNEB	66708	0	66708	61770	92 60	127	1	78	44	4	D
360		KUMARDIHI A	ROM B	BTPS (M)/DPL	168980	0	168980	13224	7 83	11	0	10	1	0	B
361		KUMARDIHI B	ROM B	BTPS (M)/DPL	206009	0	206009	13446	6 53	12	0	12	0	0	B
362		TILABONI	ROM B	BTPS (M)/DPL	144259	0	144259	8352	5 79	11	0	9	1	1	B
363		NAKRAKONDA	ROM B	BTPS (M)/KTPP/CESC	130362	0	130362	71276	54 68	204	0	192	11	1	B
364		JHANJRA	ROM C	BTPS (M)/KTPP/CESC	225555	0	225555	12008	53 21	217	4	194	19	0	C
365		JHANJRA	ROM B	BTPS (M)/KTPP/CESC	848708	633	849341	467132	55 00	164	0	138	26	0	B
366		PANDAVESWAR	ROM B	TNEB/DPL/BSP	224027	0	224027	61828	27 60	72	0	64	8	0	B
367		DALURBAND OCP	ROM C	TNEB/DPL/BSP	215405	24913	240318	58471	24 33	73	4	65	4	0	C

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(Figures in thousand tonnes)

SL NO	AREA	COLLIERY	NOTIFIED GRADE	LINKED TPS	DESPATCH			QTY SAMPLE (TE)	% COVERAGE OF SAMPLING	SAMPLE DRAWN	ANALYSIS RESULTS				REMARKS
					RAIL	ROAD	TOTAL				A GR	S GR	-1 GR	-2 GR	
368		SOUTH SAMPLA	ROM B	BTPS (M)/KTPP/CESC	74206	0	74206	40716	54 87	190	20	170	0	0	B
369		MONDARBONI	ROM B	DPL/BSP	121075	0	121075	4472	3 69	5	0	5	0	0	B
370		MADHAIPUR	ROM B	DPL	200396	0	200396	1450	0 72	1	0	1	0	0	B
371		S P BAZARI	ROM B	TNEB/KTPP/BTPS (M)	2341394	0	2341394	2139446	91 37	691	0	297	341	53	C
372		BAHULA	ROM B	BTPS (M)/KTPP/TNEB	916617	0	916617	659518	71 95	198	0	152	40	6	B
373		NEW KENDA	ROM B	DPL/RSP	199712	0	199712	24592	12 31	12	0	12	0	0	B
374		JAMBAD OCP	ROM B	TNEB/RTPS	154349	7766	162115	94589	58 35	48	0	12	13	23	C
375		MADHUJORE	ROM B	BTPS	47244	0	47244	1160	2 46	3	0	3	0	0	B
376		MADHABPUR	ROM B	DTPS	233831	0	233831	1972	0 84	3	0	3	0	0	B
377		NABA KAJORA	ROM B	DTPS (W)	242548	0	242548	3306	1 36	3	0	3	0	0	B
378		PARASCOLE	ROM B	BTPS	117988	0	117988	1740	1 47	2	0	2	0	0	B
379		MADHUSUDAN PUR	ROM A	BTPS	119464	0	119464	1798	1 51	4	0	0	2	2	B
380		KHAS KAJORA	ROM B	BTPS	212716	0	212716	3132	1 47	4	0	4	0	0	B
381		MADHUJORE 5/6	ROM B	BTPS	47244	0	47244	1682	3 56	4	0	2	2	0	A
382		KOTTADIH	ROM A	DPL/KTPP/BTPS	225808	0	225808	118726	52 58	47	0	39	8	0	B
383		KOTTADIH	ROM C	DPL/KTPP/BTPS	127576	29998	157574	50460	32 02	54	0	21	30	3	C
384		KUARDIH	ROM B	BSP/RSP	125840	0	125840	43384	34 48	57	0	57	0	0	B
385		NIMCHA	ROM B	BSP/RSP	304418	0	304418	95178	31 27	58	0	58	0	0	B
386		J.K. NAGAR	ROM B	RSP/DPL	156593	7531	164124	20938	12 76	22	1	20	1	0	B
387		SATGRAM R	ROM B	RSP	289321	7531	296852	522	0 18	1	0	1	0	0	B

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(Figures in thousand tonnes)

SL NO	AREA	COLLIERY	NOTIFIED GRADE	LINKED TPS	DESPATCH			QTY SAMPLE (TE)	% COVERAGE OF SAMPLING	SAMPLE DRAWN	ANALYSIS RESULTS				REMARKS
					RAIL	ROAD	TOTAL				A GR	S GR	-1 GR	-2 GR	
388		MODERN SATGRAM	ROM B	RSP/IISCO/DPL	69146	0	69146	7598	10 99	19	0	18	1	0	B
389		MODERN SATGRAM	ROM C	RSP/IISCO/DPL	63582	0	63582	1682	2.65	10	0	9	1	0	C
390		NEW SATGRAM	ROM B	RSP/IISCO/DPL	0	35330	35330	19894	56 31	21	0	21	0	0	B
391	RAJMAHAL	RAJMAHAL	ROM F	MTPS/PANKI/NTPS	8778873	0	8778873	1190392	13 56	456	0	429	27	0	F

Report on the samples drawn / analysed at the loading points by Coal Controller's Organisation

MCL

(Figures in thousand tonnes)

Sl No.	Colliery	Notified Grade	Linked Thermal Power Stations	Despatch			% Coverage of sampling	Samples drawn	Analysis Results		
				Rail	Road	Total			Same	1Gr	-2Gr
1999-00											
1	Lajkura	ROM F	MSEB - Koradi, Khaperkheda, TNEB -Mettur, Tuticorin, WBPDC - Kolghat	588 53	-	588 53	32 11	54	39	14	1
2	Lilan	ROM F	-do-	777 31	-	777 31	35 57	79	49	29	1
3	Samaleswari	ROM F	-do-	3362 81	-	3362 81	34 35	330	282	148	0
4	Lakhanpur	ROM F	-do-	987 39	-	987 39	34 03	96	60	36	0
	Lakhanpur	ROM E	-do-	710 4		710 4	11 33	23	14	9	0
5	Belpahar	ROM F	-do-	2143 58	-	2143 58	34 29	210	129	80	1
6	Jagannath	ROM F	TNEB - Mettur, Tuticorin APGENCO - Muddunur, Vijaywada	244 71	-	244 71	21 45	15	15	0	0
7	Ananta	ROM F	-do-	5426 43	-	5426 43	17 35	269	256	13	0
		ROM E		830 49		830 49	8 43	20	20	0	0
8	Lingaraj	ROM F	-do-	570.98	-	570 98	17.16	28	27	1	0
		ROM E		141 42		141 42	7 4	3	3	0	0
9	Kalinga	ROM F	-do-	5495 39	-	5495 39	21 08	331	325	6	0
10	Bharatpur	ROM F	-do-	712 04	-	712 04	21 14	43	42	1	0
				15022.16	0	15022 16	27 26	1181	955	323	3

MCL

(Figures in thousand tonnes)

				Despatch					Analysis Results		
1998-99											
1	Lajkura	ROM F	MSEB - Koradi, Khaperkheda, TNEB -Mettur, Tuticonn, WBPDC - Kolghat	766 33	-	766 33	82 67	181	140	39	2
2	Lilan	ROM F	-do-	696 67	-	696 67	96 96	193	155	38	0
3	Samaleswari	ROM F	-do-	3310 28	-	3310 28	92 30	873	674	170	29
4	Lakhanpur	ROM F	-do-	1104 83	-	1104 83	99 15	313	219	90	4
5	Belpahar	ROM F	-do-	2875 19	-	2875 19	100 00	822	575	237	10
6	Jagannath	ROM F	TNEB - Mettur, Tuticonn APGENCO - Muddunur, Vijaywada	539 68	-	539 68	43 45	67	64	3	0
7	Ananta	ROM F	-do-	5719 23	-	5719 23	50 98	833	756	77	0
8	Lingaraj	ROM F	-do-	1094 43	-	1094 43	51 17	160	145	14	1
9	Kalinga	ROM F	-do-	4682 44	-	4682 44	43 65	584	556	27	1
10	Bharatpur	ROM F	-do-	1435 32	-	1435 32	43.65	179	170	9	0
1997-98											
1	Lajkura	ROM F	MSEB - Koradi, Khaperkheda, TNEB -Mettur, Tuticonn, WBPDC - Kolghat	1049 64	-	1049 64	64 69	194	124	64	6
2	Lilan	ROM F	-do-	1250 48	-	1250 48	70 25	251	170	76	5
3	Samaleswari	ROM F	-do-	2656 13	-	2656 13	84 73	643	516	124	3

MCL

(Figures in thousand tonnes)

				Despatch					Analysis Results		
4	Lakhanpur	ROM F	-do-	1042 59	-	1042 59	76 20	227	150	69	8
5	Belpahar	ROM F	-do-	3123 83	-	3123 83	85 71	765	504	231	30
6	Jagannath	ROM F	TNEB - Mettur, Tuticorin APGENCO - Muddunur, Vijaywada	2206 82	-	2206 82	36 00	228	204	24	0
7	Ananta	ROM F	-do-	4995 82	-	4995 82	42.80	611	551	60	0
8	Lingaraj	ROM F	-do-	2130 17	-	2130 17	42 70	260	235	25	0
9	Kalinga	ROM F	-do-	4503 17	-	4503 17	36 00	466	416	49	1
10	Bharatpur	ROM F	-do-	457 54	-	457 54	35 90	47	42	5	0

Notes:

1 The despatch quantity has been shown excluding the quantity where joint sampling arrangement exists

2 Since there is common despatch points for a number of collieries the number of samples have been taken on account of each colliery

Report on the samples drawn / analysed at the loading points by Coal Controller's Organisation

SECL

(Figures in thousand tonnes)

SL NO	COLLIERY	NOTIFIED GRADE	LINKED TPS	DESPATCH	% COVERAGE OF SAMPLING	SAMPLE DRAWN	% SAMPLE DRAWN	Analysis results		
								SAME	-1 GR	-2 GR
1999-2000										
1	JAINAGAR	STM-B,SLK-C	GEB,RSEB,MSEB	311 83	8 92%	10	27 82	9	1	0
2	KUMDA	ROM-C	GEB	510 25	20 29%	21	103 53	16	5	0
3	BHATGAON	ROM-B	GEB,RSEB,MPEB	858 79	6 20%	15	53 24	11	2	2
4	CHURCHA	STM-A,SLK-B	GEB,RSEB,AEC	170 5	0 00%	0	0	0	0	0
5	KATORA SDG	ROM-SC-1,ROM-D	GEB,RSEB,AEC	17 17	0 00%	0	0	0	0	0
6	PANDAVPARA	ROM-A/B	GEB,RSEB,AEC	149 76	0 00%	0	0	0	0	0
7	CHIRMIRI	ROM-B	MPEB,GEB,AEC	51 38	3 29%	2	1 69	2	0	0
8	KURASIA	STM-B,SLK-C	MPEB,GEB,AEC	148 32	3 90%	7	5 78	6	1	0
9	NCPH	STM-B,SLK-D	MPEB,RSEB	234 09	12 72%	26	29 77	24	2	0
10	DUMANHILL	STM-B,SLK-C	GEB,RSEB,MPEB,AEC	743 82	18 73%	90	139 34	66	24	0
11	KOREA	STM-B,SLK-C	MPEB,RSEB,AEC	937 06	18 90%	118	177 11	62	52	4
12	W CHIRMIR	SLK-B	MPEB,RSEB,GEB	154 05	18 06%	40	27 82	22	18	0
13	RAJ OC	STM-C,SLKD	GEB,RSEB,MSEB	1227 71	5 65%	55	69 41	37	17	1
14	RAJ RO	STM-A,SLK-B	AEC,RSEB,MPEB,MSEB	1355 37	5 69%	60	77 11	37	23	0
15	BIJURI	STM-B,SLK-C	RSEB,GEB	293 12	1 20%	2	3 53	0	0	2
16	B BAND	WAS-1V	RSEB,GEB	79 52	0 00%	1	0	0	1	0
17	W JKD	STM-B,SLK-C	RSEB,GEB,AEC,MPEB	1016 59	4 68%	51	47 54	29	18	4
18	JAMUNA UG	ROM-C	GEB,RSEB	352 05	7 42%	25	26 12	16	8	1
19	JAMUNA OC	ROM-C	GEB,RSEB	608 45	9 34%	20	56 82	10	6	4

SECL

(Figures in thousand tonnes)

SL. NO	COLLIERY	NOTIFIED GRADE	LINKED TPS	DESPATCH	% COVERAGE OF SAMPLING	SAMPLE DRAWN	% SAMPLE DRAWN	Analysis results		
								SAME	-1 GR	-2 GR
20	BHANDRA	ROM-B	MPEB,RSEB	91 64	5 75%	6	5 27	0	3	3
21	GOVIND	ROM-C	GEB,MPEB,RSEB	434 97	12 84%	23	55 87	18	3	2
22	BURHAR SDG	ROM-D	MPEB,RSEB,GEB	1476 57	6 23%	55	92 01	38	17	0
23	AMLAI SDG	ROM-C	MPEB,RSEB,GEB	391 93	4 04%	64	15 83	45	19	0
24	NOWROZABAD	ROM-C	GEB,RSEB	1472 42	7 17%	35	105 61	23	12	0
25	KUSMUNDA	ROM-F	GEB,MSEB	3674 03	5 25%	55	192 98	37	18	0
26	GEVRA RD SDG	ROM-F	GEB MPEB,MSEB	3507 94	4 09%	47	143 49	30	16	1
27	JUNADIH SDG	ROM-F	GEB MPEB,MSEB	5661 47	2 29%	46	129 81	33	10	3
1998-99										
28	JAINAGAR	STM-B,SLK-C	GEB,RSEB,MSEB	149 31	68 69%	34	102 56	31	2	1
29	KUMDA AEC	STM-B,SLK-C	GEB,RSEB,MSEB	633 41	51 96%	204	329 11	131	69	4
30	BHATGAON AEC	ROM-B	GEB,RSEB,MSEB	707 21	67 50%	139	477 36	101	36	2
31	CHIRMIRI	STM-B,SLK-C	GEB,RSEB	96 61	59 09%	67	57 09	59	8	0
32	KURASIA	STM-B,SLK-C	GEB,RSEB	102 38	66 35%	95	67 93	72	22	1
33	DUMANHILL	STM-B,SLK-C	GEB,RSEB,MSEB	631 06	44 62%	183	281 58	139	44	0
34	KOREA-I AEC	STM-B,SLK-C	GEB,RSEB,MSEB	492 6	52 63%	256	259 25	164	85	7
35	KOREA-II AEC	STM-B,SLK-C	GEB,RSEB,MSEB	195 71	31 49%	92	61 62	44	47	1
36	NCPH AEC	STM-B,SLK-D	GEB,RSEB	143 79	75 30%	112	108 28	109	3	0
37	W CHIRMIRI AEC	SLK-B	GEB,RSEB,MSEB	100 98	61 42%	94	62 02	79	15	0
38	CHURCHA AEC	STM-A,SLK-B	GEB,RSEB,MSEB	358 84	71 02%	151	254 85	113	38	0
39	KATKONA(SC-1)	ROM-SC-1/D	GEB,RSEB,MSEB	40 92	49 66%	20	20 32	15	5	0
40	KATORA SDG	ROM-A/B	GEB,RSEB,MSEB	105 99	46 65%	30	49 44	21	8	1

SECL

(Figures in thousand tonnes)

SL NO	COLLIERY	NOTIFIED GRADE	LINKED TPS	DESPATCH	% COVERAGE OF SAMPLING	SAMPLE DRAWN	% SAMPLE DRAWN	Analysis results		
								SAME	-1 GR	-2 GR
41	RAJ OC AEC	STM-C,SLK-D	GEB,RSEB	1031 78	54 38%	283	561 12	191	80	12
42	RAJ RO AEC	STM-A,SLK-B	GEB,RSEB	1018 02	38 22%	167	389 09	134	26	7
43	BIJURI AEC	STM-B,SLK-C	GEB,RSEB	238 03	54 48%	99	129 67	77	20	2
44	B BAND AEC	WAS-1V	GEB,RSEB	84 88	1 43%	1	1 21	1	0	0
45	W JKD AEC	STM-B,SLK-C	GEB,RSEB,MSEB	705 78	44 77%	148	316	103	38	7
46	JAMUNA OC	ROM-C	GEB,RSEB	738 1	32 59%	80	240 55	32	30	18
47	JAMUNA UG AEC	STM-C,SLK-C	GEB,RSEB	98 85	49 51%	45	48 94	29	9	7
48	BHADRA AEC	ROM-B	GEB,RSEB,AEC	131 89	68 53%	99	90 39	37	50	12
49	GOVINDA AEC	ROM-C	GEB,RSEB,AEC	404 38	85 47%	145	345 62	89	52	4
50	KOTMA	ROM-C	GEB,RSEB,AEC	10 44	67 43%	5	7 04	4	1	0
51	AMLAI SDG AEC	ROM-C	GEB,RSEB	398 12	69 15%	424	275 29	255	119	50
52	BURHAR SDG AEC	ROM-D	GEB,RSEB	766 32	52 67%	327	403 62	283	42	2
53	NOWROZABAD AEC	ROM-C	GEB,RSEB,AEC	1247 45	80 25%	274	1001 04	196	78	0
54	KUSMUNDA	ROM-F	GEB,RSEB,AEC	3949 57	83 59%	928	3301 56	681	246	1
55	GEVRA RD SDG	ROM-F	GEB,MSEB	3026 18	87 37%	745	2643 84	564	178	3
56	JUNADIH SDG	ROM-F	GEB,MSEB	4414 71	83 59%	1048	3690 07	837	210	1
57	MANIKPUR SDG.II	ROM-F	GEB,MSEB	1101 31	87 99%	257	969 03	192	63	2
1987-88										
58	JAINAGAR	STM-B,SLK-C	GEB,RSEB,AEC	409 86	58 49%	73	239 73	56	17	0
59	KUMDA	STM-B,SLK-C	GEB,RSEB,MSEB,AEC	777 47	60 19%	266	467 96	166	93	7
60	BHATGAON	ROM-B	GEB,RSEB	1121 42	78 12%	262	876 08	198	61	3
61	CHIRMIRI	STM-B,SLK-C	GEB	48 42	90 62%	46	43 88	30	16	0
62	KURASIA	STM-B,SLK-C	GEB	21 88	57 72%	20	12 63	17	3	0

SECL

(Figures in thousand tonnes)

SL. NO	COLLIERY	NOTIFIED GRADE	LINKED TPS	DESPATCH	% COVERAGE OF SAMPLING	SAMPLE DRAWN	% SAMPLE DRAWN	Analysis results		
								SAME	-1 GR	-2 GR
63	DUMANHILL	STM-B,SLK-C	GEB,AEC	599 15	50 75%	173	304 07	119	41	13
64	NCPH	STM-B,SLK-D	GEB	40 04	82 19%	30	32 91	30	0	0
65	KOREA-I	STM-B,SLK-C	GEB,RSEB,AEC	344 01	50 58%	257	174 01	138	101	18
66	KOREA-II	STM-B,SLK-C	GEB,RSEB,AEC	465 55	53 33%	268	248 3	154	99	15
67	W CHIRMIRI	SLK-A/B	GEB,RSEB,AEC	121 7	52 71%	103	64 15	34	49	20
68	CHURCHA	STM-A,SLK-B	GEB,RSEB,AEC	512 56	82 15%	240	421 06	183	54	3
69	KATKONA(SC-1)	ROM-SC-1,/ROM-D	GEB,AEC	108 79	37 56%	24	40 86	14	8	2
70	KATORA SDG.	ROM-A/B/D	GEB,AEC	60 56	58 42%	22	35 38	15	5	2
71	RAJ OC	STM-C,SLK-D	GEB,RSEB,AEC	958 59	74 67%	370	715 76	271	96	3
72	RAJ RO	STM-A,SLK-B	GEB,RSEB,AEC	973 83	63 88%	360	622 08	295	60	5
73	BIJURI	STM-B,SLK-C	GEB	491 61	67.81%	268	333 37	196	61	11
74	B.BAND	WAS-1V	GEB	152 81	0 00%	0	0	0	0	0
75	W JKD	STM-B,SLK-C	GEB,RSEB,AEC	905 49	37 60%	235	340 47	191	38	6
76	JAMUNA UG	STM-C,SLK-C	GEB,RSEB,AEC	61 67	36 37%	24	22 43	15	6	3
77	JAMUNA OC	ROM-C	GEB,RSEB,AEC	700 8	59 65%	122	418 02	73	32	17
78	BHADRA	ROM-B	GEB,RSEB,AEC	129.22	61 84%	114	79 91	45	50	19
79	GOVINDA	ROM-C	GEB,RSEB,AEC	266 58	66 96%	157	178 5	101	54	2
80	KOTMA	ROM-C	GEB,RSEB,AEC	294 77	57 25%	107	168 77	60	35	12
81	AMLAI SDG	ROM-C	GEB,RSEB,AEC	733 91	80 31%	770	589 39	512	238	20
82	BURHAR SDG	ROM-D	GEB,RSEB,AEC	734 26	84 07%	595	617 29	449	136	10
83	KUSMUNDA	ROM-F	GEB,MSEB	4541 96	88 39%	1167	4014 56	830	336	1
84	GEVRA RD SDG	ROM-F	GEB,MSEB	3405.04	88 18%	829	3002 73	495	334	0
85	JUNADIH SDG.	ROM-F	GEB,MSEB	3794 59	89 38%	1037	3391 5	764	272	1

SECL

(Figures in thousand tonnes)

SL NO	COLLIERY	NOTIFIED GRADE	LINKED TPS	DESPATCH	% COVERAGE OF SAMPLING	SAMPLE DRAWN	% SAMPLE DRAWN	Analysis results		
								SAME	-1 GR	-2 GR
86	NOWROZABAD	ROM-C	GEB,RSEB,AEC	1391 33	86 87%	347	1208 61	257	90	0
87	MANIKPUR SDG II	ROM-F	GEB,MSEB	421 45	98 08%	140	413 34	100	39	1

Report on the samples drawn / analysed at the loading points by Coal Controller's Organisation

WCL

(Figures in lakhs tonnes)

SL NO.	AREA	COLLIERY/SDG	NOTIFIED GRADE	LINKED TPS	DESPATCHES				% COVERAGE OF SAMPLING	SAMPLES DRAWN	ANALYSIS RESULTS			
					RAIL	ROAD	OM	TOTAL			SAME & ABOVE	-1 Gr	2-Gr	REMARKS
1999-2000														
1	BALLARPUR	Panderponi	PRE	MSEB/RTPS	13 4	0	0	13 4	9%	32	24	8	0	
2	BALLARPUR	New Sasti	PRD	MSEB	12 73	0	0	12.73	15%	53	20	32	1	
3	BALLARPUR	BallarpurOCP CHP	PRE	MPEB	3 21	0	0	3 21	18%	20	15	5	0	
4	CHANDRAPUR	HLC	PRD	MSEB	8 9	0	0	8 9	20%	101	67	34	0	
5	CHANDRAPUR	CRC	PRD	MSEB	5 01	0	0	5 01	23%	79	51	28	0	
6	CHANDRAPUR	POC	PRD	CTPS	0	0	10 96	10 96	No sampling	0			0	
7	CHANDRAPUR	DOC	PRD	CTPS	0	0	16 84	16 84	1%	3	3	0	0	
8	WANI	Ghugus Old Sdg	PRE	MSEB	29 1	0	0	29.1	5%	46	19	26	1	
9	WANI	Ghugus New Sdg	PRD	MSEB	17 1	0	0	17 1	8%	41	7	33	1	
10	WANI	Naigaon OC	PRE	MSEB	0	0	0	0	0	0	0	0	0	
11	WANI	Nila OC	PRC	MSEB	0	0	0	0	No sampling	0	0	0	0	
12	WANI	Wani Sdg	PRE	MSEB	25 14	0	0	25 14	10%	83	57	26	0	

WCL

(Figures in lakhs tonnes)

SL NO	AREA	COLLIERY/SDG	NOTIFIED GRADE	LINKED TPS	DESPATCHES				% COVERAGE OF SAMPLING	SAMPLES DRAWN	ANALYSIS RESULTS			
13	WANI	Rajur	PRC	MSEB	1 91	0	0	1 91	No sampling	0	0	0	0	
14	MAJRI	NMOC CHP	PRE	MSEB	15 89	0	0	15 89	15%	71	47	24	0	
15	MAJRI	Chargaon Sdg	PRE	MSEB	17 64	0	0	17 64	15%	80	42	38	0	
16	KANHAN	Palchon	PRD	MPEB	2 75	2 12	0	4 87	10%	88	54	34	0	
17	KANHAN	Hirdagarh	PRE	MPEB	2 53	0 94	0	3 47	29%	92	40	43	9	
18	KANHAN	Hirdagarh	Midlings	MPEB	2 99	0	0	2 99	No sampling	0	0	0	0	
19	NAGPUR	Godhni Sdg	PRC	MPEB Sami	0	0	0	0	No sampling	0	0	0	0	
20	NAGPUR	Godhni Sdg	PRD	MPEB Sami	5 62	0	0	5 62	2%	7	1	6	0	
21	NAGPUR	Gondegaon ex godhni	PRE	MPEB Sami	3 54	1 5	0	5 04	4%	8	4	4	0	
22	NAGPUR	Gondegaon ex godhni	SLC	MPEB Sami	0 27	0	0	0 27	No sampling	0	0	0	0	
23	NAGPUR	PATANSAONGI SDG	PRD	KPKD	5 97	0	0	5 97	4%	49	13	29	7	
24	NAGPUR	INDER UG	SLC	KORADI	0	0	1 65	1 65	No sampling	0	0	0	0	
25	NAGPUR	SILEWARA UG	PRD	KORADI	0	0	2 45	2 45	No sampling	0	0	0	0	
26	NAGPUR	KAMPTEE UG	PRD	KORADI	0	2 07	0 87	2 94	No sampling	0	0	0	0	
27	NAGPUR	WALNI UG	PRD	KORADI	0	0	0 27	0 27	No sampling	0	0	0	0	
28	NAGPUR	PIPLA UG	PRC	KORADI	0	0	0 65	0 65	No sampling	0	0	0	0	
29	NAGPUR	PATANSAONGI UG	PRD	KORADI	0	0	1 81	1 81	No sampling	0	0	0	0	
30	NAGPUR	KAMPTEE UG	SLC	KORADI	0	0	0	0	0	0	0	0	0	
31	UMRER	UMRER CHP	PRD	MSEB	27 47	0	0	27 47	2%	16	13	3	0	

WCL

(Figures in lakhs tonnes)

SL NO.	AREA	COLLIERY/SDG	NOTIFIED GRADE	LINKED TPS	DESPATCHES				% COVERAGE OF SAMPLING	SAMPLES DRAWN	ANALYSIS RESULTS			
32	PENCH	BG EDG	PRD	MPEB	8 74	0	0	8 74	13%	95	56	25	14	
33	PENCH	CHANDAMETA	PRE	MPEB	1 37	0	0	1 37	12%	20	13	6	1	
34	PENCH	EXLEHRA	PRE	MPEB	0	0 03	0	0 03	No sampling	0	0	0	0	
35	PENCH	EDC	PRC	MPEB	2 5	0	0	2 5	3%	9	1	4	4	
36	PENCH	GANPATI	PRC	MPEB	0	0	0	0	0	183	66	81	36	
37	PENCH AREA	MAHADSOPURI	STD/SLE	MPEB	0	0 12	0	0 12	No sampling	0	0	0	0	
38	PENCH AREA	GAWDOH	STB/SLC	MPEB	0	0 15	0	0.15	No sampling	0	0	0	0	
39	PENCH AREA	RAWANWARA OC	PRD	MPEB	0	0	0	0	No sampling	0	0	0	0	
40	PENCH AREA	RAWANWARA Khas	STC/SLD	MPEB	0	0 7	0	0 7	No sampling	0	0	0	0	
41	PENCH AREA	CHHINDA	STB/SLC	MPEB	0	0	0	0	No sampling	0	0	0	0	
42	PENCH AREA	SHIVPURI UG	STC/SLD	MPEB	0	0	0	0	No sampling	0	0	0	0	
43	PENCH AREA	VISHNUPURI	STC/SLD	MPEB	0	0 08	0	0 08	No sampling	0	0	0	0	
44	PENCH AREA	VISHNUPURI I	STC/SLD	MPEB	0	0 48	0	0 48	No sampling	0	0	0	0	
45	PENCH AREA	Thisgora	STB/SLC	MPEB	0	0 62	0	0 62	No sampling	0	0	0	0	
46	PENCH AREA	MATHAR	STB/SLC	MPEB	0	1 17	0	1 17	No sampling	0	0	0	0	
47	PENCH AREA	K K MUNDA OC	STD/SLE	MPEB	0	0 03	0	0 03	No sampling	0	0	0	0	
48	PENCH AREA	Sethia OC	STD/SLE	MPEB	0	0 24	0	0 24	No sampling	0	0	0	0	
49	PENCH AREA	Haranbhata OC	STC/SLD	MPEB	0	0 31	0	0 31	No sampling	0	0	0	0	
50	PATHAKHERA	PK-1	PRD	MPEB, SARNI	0	0	3 5	3 5	8%	26	20	6	0	

WCL (Figures in lakhs tonnes)

SL NO	AREA	COLLIERY/SDG	NOTIFIED GRADE	LINKED TPS	DESPATCHES				% COVERAGE OF SAMPLING	SAMPLES DRAWN	ANALYSIS RESULTS			
51	PATHAKHERA	PK-1	PRD	MPEB, SARNI	0	0	2.77	2.77	7%	25	20	5	0	
52	PATHAKHERA	SBH	PRF	MPEB, SARNI	0	0	5 3	5 3	10%	36	35	1	0	
53	PATHAKHERA	Sami	PRE	MPEB, SARNI	0	0	1 81	1 81	7%	27	24	3	0	
54	PATHAKHERA	SAT II	PRE	MPEB, SARNI	0	6.5	0	6.5	8%	28	22	6	0	
55	PATHAKHERA	Tawa	PRD	MPEB, SARNI	0	3 02	0	3 02	6%	45	30	15	0	
56	PATHAKHERA	CHHAT I	PRD	MPEB, SARNI	0	1 37	0	1 37	7%	51	37	12	2	
57	PATHAKHERA	CHHAT II	PRD	MPEB, SARNI	0	2 07	0	2 07	5%	20	16	4	0	
1998-1999														
58	BALLARPUR	Panderponi	PRE	MSEB/RTPS	10 36	0	0	10 36	60%	181	143	38	0	
59	BALLARPUR	New Sasti	PRD	NTPC	7 84	0	0	7 84	51%	142	97	42	3	
60	BALLARPUR	BallarpurOCP CHP	PRE	NTPC	0 48	0	0	0 48	100%	15	9	6	0	
61	CHANDRAPUR	HLC	PRD	MSEB	7 9	0	0	7 9	66%	273	219	54	0	
62	CHANDRAPUR	CRC	PRD	MSEB	4 44	0	0	4 44	72%	230	188	42	0	
63	CHANDRAPUR	POC	PRD	CTPS	0	0	10 0 3	10 03	43%	151	137	14	0	
64	CHANDRAPUR	DOC	PRD	CTPS	0	0	14 8	14 8	41%	152	130	22	0	
65	WANI	Ghugus Old Sdg	PRD	MSEB	19 2	0	0	19 2	99%	606	288	248	70	
66	WANI	Ghugus New Sdg	PRE	MSEB	26 52	0	0	26 52	99%	821	415	346	60	
67	WANI	Naigaon OC	PRE	MSEB	0	0	0	0	0	0	0	0	0	

WCL

(Figures in lakhs tonnes)

SL NO	AREA	COLLIERY/SDG	NOTIFIED GRADE	LINKED TPS	DESPATCHES				% COVERAGE OF SAMPLING	SAMPLES DRAWN	ANALYSIS RESULTS			
68	WANI	Nila OC	PRC	MSEB	0	0	0	0	No sampling	0	0	0	0	
69	WANI	Wani Sdg	PRE	MSEB	19.41	0	0	19 41	93%	519	381	133	5	
70	WANI	Rajur	PRC	MSEB	1 05	0	0	1 05	10%	6	3	3	0	
71	MAJRI	NMOC CHP	PRE	MSEB	12 19	0	0	12 19	99%	371	290	81	0	
72	MAJRI	Chargaon Sdg	PRE	MSEB	12 68	0	0	12 68	98%	384	279	105	0	
73	KANHAN	Palchon	PRD	MPEB	3 01	1 28	0	4 29	62%	464	346	110	8	
74	KANHAN	Hirdagarh	PRE	MPEB	2 06	1 74	0	3 8	54%	166	106	52	8	
75	KANHAN	Hirdagarh	Midlings	MPEB	3 02	0	0	3 02	No sampling	0	0	0	0	
76	NAGPUR	Godhni Sdg	PRC	MPEB Sami	0	0	0	0	No sampling	0	0	0	0	
77	NAGPUR	Godhni Sdg	PRD	MPEB Sami	5 99	0	0	5 99	92%	261	108	118	35	
78	NAGPUR	Gondegaon ex godhni	PRD	MPEB Sami	0	0 66	0	0 66	No sampling	0	0	0	0	
79	NAGPUR	Gondegaon ex godhni	SLC	MPEB Sami	0 45	0	0	0 45	69%	21	6	10	5	
80	NAGPUR	PATANSAONGI SDG	PRD	KPKD	5 17	0	0	5 17	83%	992	882	109	1	
81	NAGPUR	INDER UG	SLC	KORADI	0	0	1 31	1 31	No sampling	0	0	0	0	
82	NAGPUR	SILEWARA UG	PRD	KORADI	0	0	2 08	2.08	No sampling	0	0	0	0	
83	NAGPUR	KAMPTEE UG	PRD	KORADI	0	3 47	0 13	3 6	No sampling	0	0	0	0	
84	NAGPUR	WALNI UG	PRD	KORADI	0	0	0 51	0 51	No sampling	0	0	0	0	
85	NAGPUR	PIPLA UG	PRC	KORADI	0	0	0 64	0 64	No sampling	0	0	0	0	
86	NAGPUR	PATANSAONGI UG	PRD	KORADI	0	0	1 7	1 7	No sampling	0	0	0	0	

(Figures in lakhs tonnes)

WCL

SL NO	AREA	COLLIERY/SDG.	NOTIFIED GRADE	LINKED TPS	DESPATCHES				% COVERAGE OF SAMPLING	SAMPLES DRAWN	ANALYSIS RESULTS			
87	NAGPUR	KAMPTEE UG	SLC	KORADI	0	0 02	0 66	0.68	No sampling	0	0	0	0	
88	UMRER	UMRER CHP	PRD	MSEB	25 57	0	0	25 57	58%	694	560	133	1	
89	PENCH	BG EDG	PRD	MPEB	7 16	0	0	7 16	65%	641	333	221	87	
90	PENCH	CHANDAMETA	PRE	MPEB	1 73	0	0	1 73	87%	155	113	36	6	
91	PENCH	EXLEHRA	PRE	MPEB	0 06	0 01	0	0 07	33%	19	19	0	0	
92	PENCH	EDC	STC	MPEB	1 1	0	0	1 1	3%	8	2	4	2	
93	PENCH	EDC	SLD	MPEB				0		14	3	10	1	
94	PENCH	GANPATI	SLD	MPEB	0	0	0	0	0	3	1	1	1	
95	PENCH AREA	MAHADSOPURI	STC/SLD	MPEB	0	0 64	0	0 64	No sampling	0	0	0	0	
96	PENCH AREA	GAWDOH	STB/SLC	MPEB	0	0 21	0	0 21	No sampling	0	0	0	0	
97	PENCH AREA	RAWANWARA OC	STC/SLD	MPEB	0	0 06	0	0 06	No sampling	0	0	0	0	
98	PENCH AREA	RAWANWARA Khas	STC/SLD	MPEB	0	0 66	0	0 66	No sampling	0	0	0	0	
99	PENCH AREA	CHHINDA	STB/SLC	MPEB	0	0	0	0	No sampling	0	0	0	0	
100	PENCH AREA	SHIVPURI UG	STC/SLD	MPEB	0	0	0	0	No sampling	0	0	0	0	
101	PENCH AREA	VISHNUPURI	STC/SLD	MPEB	0	0 12	0	0 12	No sampling	0	0	0	0	
102	PENCH AREA	VISHNUPURI I	STB/SLC	MPEB	0	0 65	0	0 65	No sampling	0	0	0	0	
103	PENCH AREA	Thisgora	STB/SLB	MPEB	0	0 65	0	0 65	No sampling	0	0	0	0	
104	PENCH AREA	MATHAR	STB/SLB	MPEB	0	1 12	0	1 12	No sampling	0	0	0	0	
105	PENCH AREA	K K MUNDA OC	STD/SLE	MPEB	0	0	0	0	No sampling	0	0	0	0	

WCL

(Figures in lakhs tonnes)

SL NO.	AREA	COLLIERY/SDG	NOTIFIED GRADE	LINKED TPS	DESPATCHES				% COVERAGE OF SAMPLING	SAMPLES DRAWN	ANALYSIS RESULTS			
106	PENCH AREA	Sethia OC	STD/SLE	MPEB	0	0	0	0	No sampling	0	0	0	0	
107	PENCH AREA	Haranbhata OC	PRC	MPEB	0	0 32	0	0 32	No sampling	0	0	0	0	
108	PATHAKHERA	PK-1	PRD	MPEB, SARNI	0	0	3 35	3 35	13%	46	33	13	0	
109	PATHAKHERA	PK-1	PRD	MPEB, SARNI	0	0	2 71	2 71	11%	37	31	5	1	
110	PATHAKHERA	SBH	PRF	MPEB, SARNI	0	0	5 04	5 04	13%	45	35	10	0	
111	PATHAKHERA	Sarni	PRE	MPEB, SARNI	0	0	1 61	1 61	10%	41	32	9	0	
112	PATHAKHERA	SAT II	PRE	MPEB, SARNI	0	6 44	0	6 44	14%	48	40	8	0	
113	PATHAKHERA	Tawa	PRD	MPEB, SARNI	0	2 68	0	2 68	10%	33	27	6	0	
114	PATHAKHERA	CHHAT I	PRD	MPEB, SARNI	0	1 46	0	1 46	9%	18	14	4	0	
115	PATHAKHERA	CHHAT II	PRD	MPEB, SARNI	0	1 8	0	1 8	8%	25	21	4	0	
1997-1998														
116	BALLARPUR	Panderponi	PRD	MSEB/RTPS	14 91	0	0	14.91	96%	407	246	156	5	
117	BALLARPUR	New Sasti	PRD	KPCL	10 38	0	0	10 38	99%	309	206	101	2	
118	BALLARPUR	BallarpurOCP CHP	PRE	MSEB	1 95	0	0	1 95	68%	82	75	7	0	
119	CHANDRAPUR	HLC	PRC	MSEB	7 68	0	0	7 68	69%	327	222	105	0	
120	CHANDRAPUR	CRC	STC	MSEB	3 14	0	0	3 14	76%	220	162	58	0	
121	CHANDRAPUR	POC	PRD	CTPS	0	0	9 56	9 56	46%	168	147	21	0	
122	CHANDRAPUR	DOC	PRD	CTPS	0	0	17 4 9	17 49	43%	162	136	26	0	

WCL (Figures in lakhs tonnes)

SL NO.	AREA	COLLIERY/SDG	NOTIFIED GRADE	LINKED TPS	DESPATCHES				% COVERAGE OF SAMPLING	SAMPLES DRAWN	ANALYSIS RESULTS			
123	WANI	Ghugus Old Sdg	PRD	MSEB	17 41	0	0	17 41	99%	558	266	248	44	
124	WANI	Ghugus New Sdg	PRD	MSEB	24 05	0	0	24 05	99%	762	452	283	27	
125	WANI	Naigaon OC	PRE	MSEB	2 71	0	0	2 71	32%	162	126	32	4	
126	WANI	Nila OC	PRC	MSEB	0	0 13	0	0 13	No	0	0	0	0	
127	WANI	Wani Sdg	PRD	MSEB	18 76	0	0	18 76	97%	593	295	273	25	
128	WANI	Rajur	PRC	MSEB	0 74	0	0	0 74	46%	18	6	11	1	
129	MAJRI	NMOC CHP	PRD	MSEB	12 82	0	0	12 82	99%	425	187	233	5	
130	MAJRI	Chargaon Sdg	PRD	MSEB	8 91	0	0	8 91	97%	292	154	135	3	
131	KANHAN	Palchon	STC	MPEB	3 11	1 36	0	4 47	68%	533	444	80	9	
132	KANHAN	Hirdagarh	STB	MPEB	3 22	0 8	0	4 02	78%	11	4	5	2	
133	KANHAN	Hirdagarh	Midlings	MPEB	2 58	0	0	2 58	no sapmling	0	0	0	0	
134	NAGPUR	Godhni Sdg	PRC	MPEB Sami	3 61	0	0	3 61	79%	186	97	58	31	
135	NAGPUR	Godhni Sdg	PRD	MPEB Sami	4 8	0	0	4 8	59%	220	125	78	17	
136	NAGPUR	Gondegaon ex godhni	PRD	MPEB Sami	0	0	0	0	no sapmling	0	0	0	0	
137	NAGPUR	Gondegaon ex godhni	SLC	MPEB Sami	0 45	0	0	0 45	93%	33	21	9	3	
138	NAGPUR	PATANSAONGI SDG	PRD	KPKD	*4 29*	*0*	*0*	*4 29*	*99%*	*916*	*808*	*105*	*3*	
139	NAGPUR	INDER UG	SLC	KORADI	0	0 5	1	1 5	no sapmling	0	0	0	0	
140	NAGPUR	SILEWARA UG	PRD	KORADI	0	0	1 64	1 64	no sapmling	0	0	0	0	OPA-Aenal
141	NAGPUR	KAMPTEE UG	PRC	KORADI	0	3 17	0	3 17	no sapmling	0	0	0	0	

WCL

(Figures in lakhs tonnes)

SL NO	AREA	COLLIERY/SDG.	NOTIFIED GRADE	LINKED TPS	DESPATCHES				% COVERAGE OF SAMPLING	SAMPLES DRAWN	ANALYSIS RESULTS			
142	NAGPUR	WALNI UG	PRD	KORADI	0	0	0 59	0 59	no sapmling	0	0	0	0	
143	NAGPUR	PIPLA UG	PRC	KORADI	0	0	0 83	0 83	no sapmling	0	0	0	0	
144	NAGPUR	PATANSAONGI UG	PRD	KORADI	0	0	1 45	1 45	no sapmling	0	0	0	0	
145	NAGPUR	KAMPTEE UG	SLC	KORADI	0	0 38	0 95	1 33	no sapmling	0	0	0	0	
146	UMRER	UMRER CHP	PRC	MSEB	24 96	0	0	24 96	100%	763	327	386	50	
147	PENCH	BG EDG	PRD	MPEB	6 32	0	0	6 32	71%	327	232	87	8	
148	PENCH	CHANDAMETA	PRE	MPEB	1 39	0	0	1 39	92%	129	105	22	2	
149	PENCH	EXLEHRA	PRE	MPEB	0 14	0 03	0	0 17	100%	30	20	10	0	
150	PENCH	EDC	STC	MPEB	0 36	0 03	0	0 39	37%	24	2	11	11	
151	PENCH	EDC	SLD	MPEB				0		28	6	13	9	
152	PENCH	GANPATI	STC	MPEB	0 83	0	0	0 83	81%	74	27	32	15	
153	PENCH AREA	MAHADSOPURI	STC/SLD	MPEB	0	0 62	0	0 62	no sampling	0	0	0	0	
154	PENCH AREA	GAWDOH	STB/SLC	MPEB	0	0 17	0	0 17	no sampling	0	0	0	0	
155	PENCH AREA	RAWANWARA OC	STC/SLD	MPEB	0	0 69	0	0 69	no sampling	0	0	0	0	
156	PENCH AREA	RAWANWARA Khas	STC/SLD	MPEB	0	0 63	0	0 63	no sampling	0	0	0	0	
157	PENCH AREA	CHHINDA	STB/SLC	MPEB	0	0 09	0	0 09	no sampling	0	0	0	0	
158	PENCH AREA	SHIVPURI UG	STC/SLD	MPEB	0	0 04	0	0 04	no sampling	0	0	0	0	
159	PENCH AREA	VISHNUPURI	STC/SLD	MPEB	0	0 21	0	0.21	no sapmling	0	0	0	0	
160	PENCH AREA	VISHNUPURI I	STB/SLC	MPEB	0	0 63	0	0.63	no sapmling	0	0	0	0	

(Figures in lakhs tonnes)

WCL

SL NO	AREA	COLLIERY/SDG	NOTIFIED GRADE	LINKED TPS	DESPATCHES				% COVERAGE OF SAMPLING	SAMPLES DRAWN	ANALYSIS RESULTS			
161	PENCH AREA	Thisgora	STB/SLB	MPEB	0	0 43	0	0.43	no sapmling	0	0	0	0	
162	PENCH AREA	MATHAR	STB/SLB	MPEB	0	1 01	0	1 01	no sapmling	0	0	0	0	
163	PENCH AREA	K K MUNDA OC	STD/SLE	MPEB	0	0 25	0	0 25	no sapmling	0	0	0	0	
164	PENCH AREA	Sethia OC	STD/SLE	MPEB	0	0 21	0	0 21	no sapmling	0	0	0	0	
165	PENCH AREA	Haranbhata OC	PRC	MPEB	0	1 03	0	1 03	no sapmling	0	0	0	0	
166	PATHAKHERA	PK-1	PRD	MPEB, SARNI	0	0	3 28	3 28	33%	114	86	26	2	OM-Belt
167	PATHAKHERA	PK-1	PRD	MPEB, SARNI	0	0	2 6	2 6	27%	97	82	14	1	
168	PATHAKHERA	SBH	PRF	MPEB, SARNI	0	0	5 58	5 58	23%	79	63	16	0	
169	PATHAKHERA	Sami	PRE	MPEB, SARNI	0	0	1 68	1 68	23%	78	49	29	0	
170	PATHAKHERA	SAT II	PRE	MPEB, SARNI	0	6 56	0	6 56	26%	94	37	55	2	
171	PATHAKHERA	Tawa	PRD	MPEB, SARNI	0	2 51	0	2 51	17%	65	40	22	3	
172	PATHAKHERA	CHHAT I	PRD	MPEB, SARNI	0	1 46	0	1 46	13%	30	21	9	0	
173	PATHAKHERA	CHHAT II	PRD	MPEB, SARNI	0	1 81	0	1 81	14%	51	37	12	2	
174	KANHAN	Palchon	SLD	MPEB				0		375	330	42	3	
175	KANHAN	Hirdagarh	SLD	MPEB				0		266	149	97	20	

Annexure 3.2

Ministry of Coal order on appointment of umpires (dated 17.5.1995)

1. In supersession of Ministry of Coal Office Order of even number dated the 12 January 1995 regarding setting up of a Dispute Resolution Mechanism for resolving all pending disputes regarding dues payable by Power Utilities to the coal companies for supply of coal, following eminent persons are hereby appointed as Umpires for resolving the disputes in respect of the SEBs/Power Utilities mentioned against their names.

Shri V Krishnan	U. P. State Electricity Board, Rajasthan State Electricity Board and Karnataka Power Corporation
Shri R K Tikku	Punjab State Electricity Board, Haryana State Electricity Board, Badarpur Thermal Power Station and DESU
Shri R Srinivasan	Tamil Nadu and Andhra Pradesh State Electricity Boards
Shri B Vijayaraghavan	Maharashtra State Electricity Board and Gujarat Electricity Board

2. Non-payment of coal bills to Public Sector coal companies for coal supplied to the SEBs/other public sector utilities has been causing serious concern. There have been large over-dues on account of disputes raised by power utilities on grounds of quality and quantity of coal supplied to them by CIL. This matter was discussed by the Committee of Secretaries in a meeting held on 17 March 1994 in which it was decided that a convincingly transparent but speedy dispute resolution mechanism with all round acceptability should be established by appointing single member Umpires to settle the disputed dues of coal companies, that might remain unresolved after mutual discussions between SEBs and CIL or subsidiary coal companies. Accordingly it is notified that the Umpires detailed about would undertake resolution of disputes between Public Sector power utilities and public sector coal companies with regard to disputed dues payable by the former to the latter.
3. The Dispute Resolution Mechanism will offer an opportunity for the concerned power utilities and coal companies to put forth their cases before the umpires

for quick scrutiny and equitable decision. Any assistance by legal counsels, lawyers, etc. will not be permitted and the parties will present their cases before the umpires on their own. Technical provisions of the law of evidence will not apply; however, fair and adequate opportunity will be afforded to the parties to the dispute to lead evidence and be heard.

4. The issues which will be referred to the Umpires and on which awards will be given by the Umpires shall be for resolution of disputed dues of public sector coal companies against public sector power utilities (under the State / Central Governments) that might remain unresolved after mutual discussions between the parties and which may be referred to the said Umpires by the Ministry of Coal.
5. On matters involving common principles of settling disputes dues, there should be commonality in approach by the Umpires for which they may consult each other or meet in a group and take common decisions. The Umpires may also take the assistance of personnel from Central Electricity Authority / Ministry of Coal as deemed necessary by them in the consideration of any particular issue.
6. Ministry of Coal will in consultation with the Umpires, fix the schedule for completion of the settlement of the dispute and will monitor the progress of work.
7. The terms and conditions of appointment of Umpires are as under·
   i) The Umpires will be paid an honorarium of Rs. 1000/- per day of work subject to a ceiling of Rs. 8000/- per month.
      - The above ceiling will be independent of the ceiling for the disputes relating to the Central Sector Power Utilities in respect of which Ministry of Power might have already appointed them as Umpires
   ii) In addition to above, TA/DA as applicable to Secretaries to Government of India would be paid
8 Necessary accommodation, office facilities, supporting staff, transport etc., will be made available to the Umpires by the Regional Offices of CIL. The expenditure incurred on payment of honoraria, office expenses, and all other expenses connected with the functioning of the Umpires will be shared equally by all parties to the disputes. The payment in the first instance will however be made by Coal India Ltd , /concerned coal companies which will subsequently recover the respective shares from SEBs / Power Utilities.

Annexure 3.3

List of third party agencies for sampling and analysis of coal at loading and unloading points

Eskaps (India) Pvt. Ltd ,
30, Jawahar Lal Nahru
Calcutta – 700 016

Mitra S.K. Coal Inspection Pvt. Ltd.
P-11, CIT Road
Calcutta – 700 014

Mineral Exploration Corporation Limited
Dr. Babasaheb Ambedkar Bhawan
Highland Drive Road, Sominary Hills
Nagpur – 440 006

Metallurgical & Engineering Consultants (I) Ltd
Ranchi – 834 002

M/s. Coa Inspection Service
Post – Dhansar, Dhanbad

Cargo Inspects
20-B, Rani Sankari Lane
Calcutta – 26.

RITES, New Delhi House
27, Barakhamba Road
Connaught Place
New Delhi – 110 001

National Test House (ER)
11/1, Judges' Court Road,
Alipore, Calcutta – 700 027

Geo-Chem Laboratories (P) Ltd
294, Shahid Bhagat Singh Road
Fort, Mumbai – 400 001

Superintendence Company of India (Pvt.) Ltd.
7-G, Everest House, 46-C, Chowringhee Road
Calcutta – 700 071

Inspectorate Griffith (India) Pvt. Ltd.
217, Sarat Bose Road
1st Floor, Calcutta – 700 029

SGS India Ltd.
SGS House, 4B, Adi Shankaracharya Marg
Powai Road, Vikhroli (West)
Mumbai – 400 083

Central Power Research Institute (CPRI)
P.B. No 9401, Bangalore

Wellman Wacoma Limited
7, Pretoria Street
Calcutta – 700 071

National Productivity Council
Regional Directorate 9,
Ayed Amir Ali Avenue
Calcutta – 700 017

Export Inspection Council of India
11th Floor, Pragati Tower, 26 Rajendra Place
New Delhi – 110 008

Annexure 3.4

Status of appointment of 3rd party agencies for sampling / analysis

(as on 01-01-2001)

Name of SEB	Name of PHs	Name of linked coal company	Party selected	Dt. of commencement	Remarks	Status of FSA
BTPP	Badarpur	ECL/BCCL/ CCL	Export inspection agency	28-3-2000	-	FSA signed with BTPP by BCCL & CCL
DVB	Desu, I.P. Rajghat	ECL/BCCL/ CCL	MECL	-	The issue of venue of sampling of washed coal is yet to be finalized MECL is undertaking sampling on adhoc basis	FSA under examination of DVB / DESU
HPGC	Faridabad, Panipat	CCL/BCCL	M/s. Geochem Laboratory Pvt. Ltd	Started on 18-3-1999	-	FSA signed with HPGC, by CCL & BCCL
PSEB	Bhatinda, Ropar	CCL/BCCL	M/s. Geochem Laboratory Pvt. Ltd.	Started on 18-3-1999	PSEB recently indicated that they want to resort to joint sampling	FSA signed with PSEB, by CCL & BCCL
RVUNL	Kota, Suratgarh	SECL	Supdt. Co. India P Ltd.	Started on 1-11-2000	-	FSA signed with RVUNL, by SECL & NCL
MSEB	Bhusawal, Chandrapura Koradih, Parli Khaperkheda, Nasik, Paras	WCL/SECL /MCL	M/s. Mitra S K Coal Inspection Pvt Ltd.	Started on 15-03-1999	-	FSA signed between MSEB & WCL FSA with MCL & SECL under negotiation

Name of SEB	Name of PHs	Name of linked coal company	Party selected	Dt. of commencement	Remarks	Status of FSA
TNEB	Tuticorin, Ennore, Mettur, North Madras	ECL/BCCL/ MCL	Mitra S K Coal Inspection Pvt. Ltd.	Paradip - 23.12 2000 Haldia - 16.6.2000 Vizag - 8.9.2000	-	FSA under examination of TNEB
KPCL	Raichur	WCL/MCL	S.G S. India Ltd.	31.03 1999	-	FSA signed with WCL under negotiation with MCL
BSEB	Barauni Muzzafarpur Patratu Patna (PESU)	ECL/BCCL/ CCL	M/s. Eskaps (I) Pvt. Ltd	31.03 1999	-	FSA under examination of BSEB
WBSEB	Bandel Santaldih	ECL	M/s. Calcutta Industrial Supply Corp. Calcutta	31.09 1999	-	FSA under examination of WBSEB
WBPDCL	Kolaghat	ECL/BCCL/ MCL	M/s Geochem Laboratory Pvt Ltd	Likely to start from 1.2.2001	Tenure of M/s CISC, the earlier 3rd party expired and new agency selected through joint tendering process	FSA under examination of WBPDCL
CESC	Southern Mulajore New Cossipore Titagarh, Budgebudge	ECL/BCCL	M/s Geochem Laboratory Pvt Ltd	Started with ECL on 1 12 2000	After unilateral termination by ECL of earlier agency M/s. Wellman Wacoma, New Agency selected through joint tendering process	FSA signed with ECL, under negotiation with BCCL

Annexure 3.5

Reports on samples drawn / analysed by 3rd party at both ends, cumulative till the month of April 2000

Name of P H (SEB)	Name of 3rd party analyst	No of samples drawn / analyzed at LDG end	Total no of samples drawn / analyzed at P H end	No of samples in same grade / within 5% UHV tolerance		No of samples for referee analysis		No of samples: Conforming to bill grade		Slipped by 1 gr		Slipped by 2 grs.		Slipped by 3 or more grades	
				No	%age	No	%age	No	%age	No	%age	No	%age	No	%age
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Name of the Company: ECL															
WBSEB															
Bandel	CISC	776	679	665	97.94	14	2.06	345	51.88	266	40.00	49	7.37	5	0.75
Santaldih	CISC	1056	1039	1015	97.69	24	2.31	634	62.46	376	37.04	5	0.49	0	0.00
WBPDCL															
KTPP	CISC	212	88	88	100.00	0	0.00	22	25.00	66	75.00	0	0.00	0	0.00
BSEB															
Barauni	ESKAPS	270	258	241	93.41	17	6.59	126	52.28	96	39.83	19	7.88	0	0.00
MTPC	ESKAPS	304	296	292	98.65	4	1.35	125	42.81	145	49.66	22	7.53	0	0.00
NTPC															
BTPS	RITES	109	50	25	50.00	25	50.00	13	52.00	5	20.00	5	20.00	2	8.00
TNEB	Mitra S K	483	483	483	100.00	0	0.00	385	79.71	97	20.08	1	0.21	0	0.00
CESC	W. Wocama	705	707	685	96.89	22	3.11	443	64.67	203	29.64	34	4.96	5	0.73
Total ECL		**3915**	**3600**	**3494**	**97.06**	**106**	**2.94**	**2093**	**59.90**	**1254**	**35.89**	**135**	**3.86**	**12**	**0.34**

Name of P H (SEB)	Name of 3rd party analyst	No. of samples drawn / analyzed at LDG end	Total no of samples drawn / analyzed at P H end	No of samples in same grade / within 5% UHV tolerance		No of samples for referee analysis		No of samples							
								Conforming to bill grade		Slipped by 1 gr		Slipped by 2 grs		Slipped by 3 or more grades	
				No	%age	No	%age	No	%age	No	%age	No	%age	No	%age
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Name of the Company. BCCL															
PSEB															
Ropar	Geo-Chem	919	916	665	72 60	251	27 40	385	57 89	191	28 72	81	12 18	8	1 20
GNDTP	Geo-Chem	335	327	239	73 09	88	26 91	120	50 21	61	25 52	50	20.92	8	3 35
L. Mohabat	Geo-Chem	275	260	192	73 85	68	26 15	79	41 15	54	28.13	52	27 08	7	3 65
HSEB															
Panipat	Geo-Chem	185	185	163	88 11	22	11 89	91	55 83	41	25.15	21	12.88	10	6.13
NTPC															
BTPS	RITES/MECL	429	429	248	57 81	181	42 19	144	58 06	64	25 81	33	13 31	7	2 82
BSEB															
Barauni	ESKAPS	52	52	49	94 23	3	5 77	26	53 06	23	46 94	0	0 00	0	0 00
MTPS	ESKAPS	53	51	49	69 08	2	3 92	17	34 69	24	48 98	7	14 29	1	2 01
TNEB	Mitra S K	84	68	68	100 00	0	0 00	57	83 82	11	16 18	0	0 00	0	0.00
Total BCCL till Apr 2000		**2332**	**2288**	**1673**	**73 12**	**615**	**26 88**	**919**	**54 93**	**469**	**28.03**	**244**	**14.58**	**41**	**2.45**
Name of the Company: CCL															
HSEB															

								No of samples							
Name of P.H. (SEB)	Name of 3rd party analyst	No of samples drawn / analyzed at LDG end	Total no of samples drawn / analyzed at P.H end	No of samples in same grade / within 5% UHV tolerance		No of samples for referee analysis		Conforming to bill grade		Slipped by 1 gr		Slipped by 2 grs.		Slipped by 3 or more grades	
				No	%age	No	%age	No	%age	No	%age	No.	%age	No	%age
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Fandabad	Geo-Chem	290	290	279	96 21	11	3 79	170	60 93	91	32 62	17	6 09	1	0 36
Panipat	Geo-Chem	721	721	682	94 59	39	5.41	476	69 79	183	26.83	20	2 93	3	0 44
PSEB															
Ropar	Geo-Chem	1474	1432	1209	84 43	223	15 57	846	69 98	320	26 47	42	3 47	1	0 08
Bhatinda	Geo-Chem	450	450	358	79 56	92	20 44	248	69 27	98	27 37	12	3.35	0	0.00
L Mohabat	Geo-Chem	679	679	576	84 83	103	15 17	395	68 58	168	29 17	13	2 26	0	0 00
BSEB															
PTPS	ESKAPS	546	546	504	92 31	42	7 69	317	62 90	184	36 51	3	0 60	0	0 00
NTPC															
BTPP (WC)	RITES/MECL	227	227	227	100 00	0	0 00	220	96 92	7	3.08	0	0.00	0	0.00
BTPP (RC)	RITES/MECL	68	68	60	88 24	8	11 76	58	96 67	2	3.33	0	0 00	0	0.00
Total CCL till Apr 2000		4455	4413	3895	88.26	518	11 74	2730	70 09	1053	27.03	107	2 75	5	0.13
Name of the Company: WCL															
MSEB	Mitra S K	6469	6469	4750	73 43	1719	26 57	2391	50.34	2198	46.27	161	3.39	0	0.00
KPCL	S G S Ltd	421	421	215	51 07	206	48.93	7	3.26	188	87 44	18	8.37	2	0.93

								No of samples							
Name of P.H (SEB)	Name of 3rd party analyst	No of samples drawn / analyzed at LDG end	Total no of samples drawn / analyzed at P H end	No of samples in same grade / within 5% UHV tolerance		No of samples for referee analysis		Conforming to bill grade		Slipped by 1 gr		Slipped by 2 grs		Slipped by 3 or more grades	
				No.	%age	No	%age	No	%age	No	%age	No.	%age	No	%age
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Total WCL till Apr 2000		**6890**	**6890**	**4965**	**72 06**	**1925**	**27.94**	**2398**	**48 30**	**2386**	**48.06**	**179**	**3.61**	**2**	**0.04**
Name of the Company: SECL															
MSEB															
MSEB	Mitra S K	498	463	377	81 43	86	18 57	275	72 94	102	27 06	0	0 00	0	0 00
Total SECL till Apr 2000		**498**	**463**	**377**	**81 43**	**86**	**18 57**	**275**	**72 94**	**102**	**27 06**	**0**	**0 00**	**0**	**0.00**
Name of the Company: MCL															
MSEB															
MSEB	Mitra S K	1023	1023	738	72 14	285	27.86	429	58 13	309	41.87	0	0.00	0	0 00
WBPDCL															
KTPS	C I S C	305	305	305	100 00	0	0 00	241	79 02	61	20 00	3	0 98	0	0.00

Source Coal India Limited

Annexure 3.6

Report on samples drawn / analysed by third party at both end for Bandel and Santaldih TPS

Bandel (WBSEB)

Linked colliery	Notified grade	Total coal received (million tonnes)	Total no of Samples analyzed	Results no. in different grades			
		Rail	-	A	B	C	D
1999-2000							
Bahula	B	1 28	37		7	20	10
Khottadih	A	2 65	86	46	40		
Jhanjra	B & C	0 46	48		18	7	23
Jambad	C	0.55	16			10	6
Belbad	A & B	0 50	4		2	2	
Topsi - 2 & 4	A, B, & C	1 95	232	80	120	32	
S B PR	B	1 40	47		8	39	
Kum/Til	B & C	0 70	48		18	22	8
S Samla	B	0 40	22		4	18	
Bhanora	B	0 48	43		7	36	
BECML	B	2 81	85				85
Apr.-Dec. 2000							
Bahula	B	0 78	28		14	14	
Khottadih	A	1 48	66	17	49		
Jhanjra	B & C	1 22	44		10	20	14
Dhemomen	B & C	0 40	20		8	10	2
Belbad	A & B	1 06	36	6	14	16	
Topsi - 2 & 4	A, B, & C	0.36	78	48	12	12	6
S B Pr	B	0 98	31		15	16	
Kum/Til	B & C	0 44	18		5	6	7
S Samla	B	0 36	19		11	8	
Bhanora	B	0 32	16		6	10	
BECML	B	2 54	74				74

Santaldih (WBSEB) TPS

Linked colliery	Notified grade	Total coal received from colliery (million tonnes)	Total no of Samples analyzed	Results no in different grades			
		Rail		A	B	C	D
1999-2000							
Parbelta	B	2 65	200		144	56	
Patmohana	B	0 85	184		136	48	
Bejdih	C	0 86	184			100	84
Methani	B	0.63	182		84	100	
Sodepur	B	1 08	182		104	78	
Chinakun	A & B	1 30	112	57	15	40	
Apr -Dec 2000							
Parbelia	B	1 49	101		78	23	
Patmohana	B	0.41	107		82	25	
Bejdih	C	0 78	107			59	48
Methani	B	0.46	107		58	49	
Sodepur	B	0 74	106		72	34	
Chinakun	A & B	1 13	81	41	18	22	

Annexure 3.7

Status of Joint sampling / analysis for coal supplies to utilities

(as on 01.01.2001)

Name of SEB	Name of PHs	Name of linked coal company	Date of commencement / remarks	Status of FSA
UPSEB	Harduagang, Panki old, Panki extn , Pancha Tanda, Orba	NCL / ECL / CCL / BCCL	Joint sampling at loading end exists	FSA under examination
GEB	Gandhinagar, Ukai, Sikka, Wankaban	SECL / WCL / NCL / MCL	Joint sampling at both end started	FSA under examination by GEB
AEC	Ahmedabad	SECL	Joint sampling protocol signed and joint sampling at both end started w e f 1 12 98	FSA under negotiation
MPEB	Amarkantak, Korba East, Korba West, HTPP Satpura / Sami, Birsingnagar	SECL / WCL	Joint sampling at unloading end and analysis at alternate end fortnightly is already in vogue in case of pit head PHs For other PHs MPEB and SECL are negotiating either to extend joint sampling or to adopt 3rd party sampling	FSA under examination by MPEB
NTPC	Unchahar, Singrauli, Rihand, Korba, Vindhya, Ramagundam, Khalgaon, Talcher TPS, Talcher STPS, Farakka	CCL / NCL / MCL / ECL / BCCL / WCL	Joint sampling at loading end for washed coal supplies for Dadri is being pursued by RSM, New Delhi, which will be finalized after signing of FSA At present Dadri PH is accepting CCO sampling For Unchahar joint sampling at loading end being continued for both washed and draw coal supplies For other PHs joint sampling at loading end being continued	FSA signed with NTPC for all pit head PHs For new PHs / Extensions, FSA under negotiation
DVC	Bokaro, Chandrapura, Mejia, Durgapur	ECL / BCCL / CCL	Joint sampling at loading end being continued CCO sampling discontinued for Durgapur TPS and Bokaro TPS for rail despatches from 1 8 99 For Bokaro TPS joint sampling at loading end for road despatch continuing However, negotiation for selection of 3rd party started	Draft FSA submitted to DVC No feedback available
DPL	DPS, Durgapur (DPL)	ECL / BCCL	Joint sampling at both end implemented w e f 11 6 1998	Draft FSA submitted to DPL

Name of SEB	Name of PHs	Name of linked coal company	Date of commencement / remarks	Status of FSA
APGENCO	Vijaywada, Mudannur	MCL	Joint sampling at both ends started	No feedback FSA under examination of APGENCO
OPGC	IB (MGR)	MCL	Joint sampling at loading point continuing	Draft FSA submitted to OPGC No feed back available
ASEB	Bongaingaon	NEC / ECL	ASEB was informed for starting joint sampling / 3rd party sampling by ECL ASEB has not responded so far Payment being made in SCH grade	Draft FSA submitted to ASEB No feedback available

Note The Private Utilities, viz BSES, DPS (Disergarh) & Tata - Hydro are paying as per scheduled grade and have not approached for FSA

Annexure 4.1

Uni-Sampler Operation

The following is a description of components and operation of the Uni-Sampler:

The Uni-Sampler can either be mounted stationary or on a 6-ton road-legal trailer with pintle hitch and lights. The operator is housed in a heated and air-conditioned cab with lighting, all electrical controls, boom controls, and sample-access and storage all with the cab.

The Uni-Sampler module is suspended from the end of a 22 ft. radius kunckle boom, with 550 degree rotation, over 32 ft vertical reach and capacity of 8,000 lb. Lift at 10 ft. radius and 3,500 lb. Lift at 20 ft. radius. Stabilizer jacks are hydraulically activated on the mobile unit.

A sealed electrical center, mounted in the cab, contains circuit protection and switching for the 75 hp main electric motor which powers tandem hydraulic pumps for the knuckle boom and auger, motor, as well as the crusher motor, lights, heating/cooling and controls.

The Uni-Sampler module itself consists of a 12' diameter auger with teeth, 12' I.D. auger tube, sweeper bars, 12 to 1 primary cutter, crusher with motor and an adjustable secondary cutter all in one unit. No conveyer belts are required.

Patent pending.

Operation: When a truck pulls in to be sampled, the Uni-Sampler operator starts the 75 hp power pack, the crusher motor and the secondary sampler motor When the turck is stopped, the operator lowers the Uni-Sampler into the coal. As coal is augered up the tube, 11 of 12 parts fall directly back into the truck, while 1 part in 12 falls into the crusher, is crushed and all but 1 to 2 lbs. Of this portion also falls back into the truck. As the Uni-Sampler auger assembly is withdrawn from the truck, this small final sample falls by gravity through a durable flex tube directly into a plastic bag in the operator's cab.

Uni-Sampler Advantages:

- Rejects falls immediately back into truck being sampled.
- No carousel is needed

- No conveyor belts or shaker tables are required
- Only 1 to 2 lbs of coal taken from each truck
- Sample is weather – protected
- Because all major components are contained in the Uni-Sampler, it can be lowered to ground level for service and repair
- The operator is not required to leave the cab to retrieve the sample
- Only one operator is required
- Because little boom movement is needed, fast cycle times are possible.

Source: Johnson Industries, Inc. 101, Pine Fork RD, Pikeville, K Y 41501
Phone 606 639 2029

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